CURRICULUM DEVELOPMENT IN SOUTH AFRICAN TECHNIKONS: TOWARDS A PROCESS OF MODULARISATION AT M L SULTAN TECHNIKON

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ABSTRACT

In this qualitative study the fundamental principles of credit-based modular education are investigated from the perspective of international experience in Britain and the United States (US). The evolution of a mass higher education system, with multi-access and multi-exit points, in both Britain and the US, is outlined. The main concepts and principles, approaches, strengths and weaknesses, exemplars of good practice, and the potential problems of modularisation are elucidated. The purpose of the study is to identify the cardinal strategic issues to be considered in the process of implementing modularisation by M L Sultan Technikon.

The data from three chief sources are triangulated: the literature; fieldwork at five universities in Britain; and documentation provided by these five universities. From these data, in particular that from interviews with academic staff in Britain with personal experiences of the process of modularisation, a plurality of interpretations, values, perceptions, opinions, and approaches is revealed. The study does not attempt to propose a single model for modularisation for universal application.

The common themes to emerge as findings in this study illuminate the many complex and interrelated issues pertinent to modularisation that the respondents across the five universities identified. From these themes a series of critical questions to be posed by an institution in making decisions

about modularisation is suggested. The implications of the themes and questions are explored, and a possible model for their integration is suggested. The model draws together the perspective of two contrasting orientations to curriculum and the dialectic between a managerial and an educational rationale for 'going modular'. This model forms the basis for an exploration of the implications for developing a credit-based modular system in the context of M L Sultan Technikon. The following important broader issues to emerge related to modularisation are briefly discussed: assessment; credit; awards; student counselling and guidance; management; administration; semesterisation; and change.

DECLARATION

I, Lesley Anne Cooke, declare that this whole thesis is my own original work and that all the sources used or quoted have been indicated and acknowledged by means of a complete reference.

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Chapter 1: Introduction

1.1 Background and rationale

The purpose of this chapter is to contextualise this study in both the national and international milieu of change in higher education. Firstly, the development of the policies for higher education in South Africa is discussed. Then the philosophy and values that are the cornerstone of technikon education are explained. The potential role of credit-based modularity in the creation of a mass higher education system is briefly explored from the context of Britain and the United States. Following a consideration of the implications for modularisation of the paradigms that guide curriculum theories and inquiry, the chapter concludes by highlighting the pressures for change in education.

The national policy initiatives for the transformation of education and training in South Africa

The imperative to transform education and training in the 'new democratic' South Africa can be tracked through several definitive policy documents. In these policies the driving force behind the articulated goals was for the absolute exigency to redress the inequities created by apartheid. The pressures for change, long before the birth of democracy in 1994, came from a number of sources. These included the labour movement and the non-governmental education sector. The National Education Policy Initiative (NEPI) reports in 1992 and 1993 are steeped in the principles of: redress; non-racism; non-sexism; a unitary system for education; and curricular democracy (NEPI, 1992). In the 1994 African National Congress (ANC) policy discussion document the following statement clearly describes the future direction for education and training:

> South Africa will have a national system of education and training which enables citizens to become progressively qualified in a lifelong process. By integrating education and training in one system with a credit-based qualification framework, all citizens' chances to develop their capacities will be radically increased, whether they are in full-time or part-time study, employed or unemployed, in general education or in occupational preparation. The system will be learner-centred and achievement-led (ANC, 1994a: 15).

Throughout this ANC discussion document a very clear commitment to the principles of credit accumulation and transfer is apparent. In a further document, the *'Implementation Plan for Education and Training'* (ANC, 1994b), the proposal for the establishment of a National Qualification Framework (NQF) spanning all levels of education and training, and an independent body, the South African Qualification Authority (SAQA) are outlined. In the explanation of the role of SAQA the document states that 'there is an inescapable link between the structure of a qualification system and the design of the curriculum' (ANC, 1994b: 7). One of the key terms that began to appear relating to the curriculum is 'module'.

Substance was given to the ANC implementation plan when, in 1995 the SAQA Act was promulgated. This act empowered SAQA to oversee the development and implementation of the NQF. The publication of a 'White Paper on Education and Training' (DOE, 1995) marked further steps to restructure and transform the education system. This document clearly addressed areas where fundamental change was required. Amongst the wide-ranging proposals was the imperative for the focus of curriculum development to be a complete overhaul of learning programmes. The goals of fostering independent and critical thought; offering choice and flexibility; establishing a base of appropriate mathematics, science and technology education; and creating environmentally literate and active citizens are clearly articulated (DOE, 1995).

The urgency for transformation in higher education was given further impetus by the report in 1996 of the National Commission on Higher Education (NCHE, 1996). Among the complexity of issues contained in the report, the need for increased participation and redress and massification of the higher education system were discussed. According to the NCHE (1996: 47) 'the élite-mass transition cannot be summed up in a single, all-embracing idea'. One of the imperatives specified in order to foster the shift was a restructuring of the higher education system. Furthermore, the traditional currency of courses and qualifications (with the underpinning traditional academic

assumptions) must give way to more flexible approaches to the higher education curriculum. The report states that:

> Stimulated by global changes in the production and dissemination of knowledge, the traditional model is being augmented in many mass systems by an approach based on modular progression/accumulation of credits. This offers multiple entry and exit points and progression base on pragmatic connections between topics and levels, rather than cognitive coherence. It also provides greater flexibility for learners and allows for a more seamless interface between work and study. One way to achieve this is to restructure curricula according to programmes (NCHE, 1996: 48).

In 1997 the Department of Education released the Education White Paper *'A Programme for Higher Education Transformation'* (DOE, 1997a). Of the twelve national goals to be pursued in implementing the 'transformation strategy', three have particular relevance to this study. These goals are to:

- facilitate horizontal and vertical mobility by developing a framework for higher education qualifications which incorporates adequate routes of articulation, as well as flexible entry and exit points;
- improve the quality of teaching and learning through the system and, in particular to ensure that curricula are responsive to the national and regional context;
- promote the development of a flexible learning system, including distance education and resource-based learning based on open learning principles.

Greater momentum for a transformed system of higher education was given through the promulgation of the Higher Education Act (1997) which considerably strengthened the establishment of a national policy milieu.

In the discussion of some of the goals for transformation of higher education given above, several key themes emerge. These include the need to: broaden access to, and participation in, higher education; create mechanisms for the accumulation and transfer of credit; develop flexible and responsive curricula; promote mobility and progression; promote lifelong learning; and promote innovation in teaching and delivery. These goals are congruent with the concepts and principles of credit-based modularisation[1]

[1] Credit and modularisation, whilst being grounded in two different sets of principles are often conflated. The term 'credit-based modularity' is frequently used in this discussion and infers attention to both the principles of credit and of modularity. The distinction is discussed in more detail in Chapter 2.

1.2 The philosophy and values of Technikon education

The NCHE (1996) explains that the technikons were established in South Africa from 1978, in keeping with trends in other countries, and in response to national needs. The boundaries between the university, technikon and college sectors were defined according to their differing functions. Furthermore:

> The main function of the technikons is...to train students in the application of knowledge rather than in basic knowledge itself with the view to high-level career training (NCHE, 1996: 10)

Thus, the characteristics of technikon education include:

- a system of co-operative education designed and delivered jointly by Technikons and employers in a process facilitated by the establishment of Advisory Committees (Liaison Committees) which include academics, industry representatives and alumni
- the establishment of the Certification Council (SERTEC[2]) responsible for quality assurance and accreditation which will continue to operate until the HEQC of the CHE is fully established
- a system of convenor Technikons that are responsible for individual instructional programmes (DOE, 1997b: 3 -13)

Technikons were accorded degree-awarding status by an act of Parliament in 1993 and have offered degrees up to doctoral levels since 1994. The values that underpin technikon education can be compared with that of higher education institutions across the globe. In the context of this study, there are important fundamental similarities between the technikons in South Africa and the former polytechnics in Britain. The learning programmes at polytechnics were grounded in the application of practical subjects and professional courses, with qualifications to degree level and above. Like the technikons there were very strong links with industry, especially through the 'sandwich courses'. In Britain, the Quality Assurance in polytechnics, through the Council for National Academic Awards (CNAA) was national, and functionally comparable to the role of SERTEC in South Africa. For these reasons the universities to which field visits were made for this study were all 'modern' or 'new' universities that were, prior to 1992, polytechnics.

1.3 Modularity and credit in higher education in Britain and the United States of America

There has been a remarkable growth of modular and credit systems in education across the globe. As Crossley *et al* (1993: 334) comment 'the modularisation of degree course structures has become an increasingly significant issue in higher education worldwide'. In the Britain there has been a considerable focus on credit and modularity and this is reflected in the growing body of literature related to the two developments. In *'Managing the modular Course'*, a book that came to be regarded by many as a seminal text, Watson (1989) opens the *'Introduction'* as follows:

> 'Modularity' is perhaps *the* buzz word of secondary and higher education in the 1980's. A *Guardian* cartoon in September 1987 shows a discomfited candidate for a job confronting an appointment panel which is dissolving into laughter. A friendly member of the panel finally leans forward and says 'Try to ignore them - it's just that they had a bet on that you'd say "modular approach" at least twice in the first two minutes (Watson, 1989:1).

This comment was used by Watson (1989: 1) to illustrate that curriculum reforms calling themselves 'modular' have been 'met with enthusiasm by a committed minority and distrust by a concerned majority' of educators. Given the underlying doubt that is expressed in the extract above it is extraordinary that by the early 1990's up to 'three-quarters' of the higher education institutions in Britain were at some stage of developing modular practice (Watson, 1996). There were predictions that by the end of the twentieth century credit and modularity would be universal Allen and Layer (1995). As Brown (1996) commented:

> It now seems clear that the module- or unit-based curriculum is the vehicle chosen by a majority of institutions to provide educational opportunities for the expanded higher education system which is now developing in the UK (Brown, 1996: v):

This raises the question 'what makes credit-based modularity an attractive option for higher education?'. In part the answer lies in the role that the development of modularisation and credit have played in the radical transformation of British higher education from being an élite to a mass system. The evolution of a mass system in Britain is discussed further in Chapter 2.

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[2] SERTEC is the abbreviation for Sertifiseringsraad vir Technikon Onderwys

Credit-based systems in themselves are not new and they have 'long been taken for granted in the US' (Allen and Layer, 1995: 7). As Crossley *et al* (1993) explain modular structures were first developed in the US during the last decade of the nineteenth century. The evolution of the higher education system in the US is discussed in more detail in Chapter 2. The influence of modularisation has spread from North America and achieved a growing level of support, 'notably in France, Germany, Spain and other areas of continental Europe, and in Japan and many developing countries' (Crossley *et al*, 1993: 336).

Many of the policy-goals identified for higher education in South Africa resonate with those in Britain. According to the Higher Education Quality Council (HEQC, 1994a: 25) in Britain there was a 'relatively supportive policy environment' for the development of credit accumulation and transfer and greater flexibility in learning opportunities. The relevant policy objectives can be traced back to the 1963 Robbins Report on higher education, and these objectives were further developed and refined in subsequent policies. Interwoven with the influence of policy decisions a dramatic change in the landscape of the higher education system in Britain occurred when, in 1992, the former polytechnics were granted university status. Chapter 2 contains a narrative on the policy and legislative changes that culminated in a single system for mass higher education in Britain. Although the changes occurred in response to different stimuli in Britain, the description of the process and experiences reveals similarities with the move towards a unified higher education system in South Africa.

1.4 The rationale for this study

An interest in conducting this study grew as a consequence of the factors described above becoming consolidated into a robust topic for research. There was a general aspiration at M L Sultan Technikon to respond to the goals for transforming education in South Africa that had been established in the policy environment. This was coupled with an institutional intent to initiate the process of developing modular courses. The considerable pool of experience of the processes of modularisation in Britain and the extent of

developments in the US were evident from conducting a preliminary literature review.

From the outset it was recognised that, as Theodossin (1986) asserts, it is very difficult to isolate the attractive features of overseas education systems and to attempt to transplant them into another national or international context. Thus, the study did not seek to provide a blueprint for an ideal modular system. The purpose of the study was to establish some of the important issues and considerations to be made in 'going modular' through exploring the underlying concepts, principles, benefits and drawbacks of modularisation.

It might have been acceptable to have conducted a literature-based inquiry, and perhaps, on the basis of that type of study, to have made some generalisations about modularity. However, it seemed more appropriate to adopt an approach that actually gathered data from academic staff with personal experiences of the implementation of modularisation. The opportunity to interact directly with such academics through conducting interviews which sought to explore their ideas and opinions, and to be able to probe more deeply when necessary, seemed to offer a greater potential to meet the needs of M L Sultan Technikon. In this study a compromise between the two approaches was adopted as it was beyond the scope of the study to make field visits to both the US and Britain. Therefore, the literature was the source of information concerning higher education in the US, and a field visit to conduct interviews and collect supporting documentation was made to Britain. The conduct of the study is discussed in Chapter 4.

Seeking a paradigm shift

The extract taken from the 1996 NCHE report (included in section 1.1 above) appears to particularly stress that, through adopting a modular approach, the aspiration of transforming education could be realised. However, a counter-argument would be that modularisation atomises knowledge, is reductionist, mechanistic and technical. One of the crucial considerations to be made is the values and beliefs that underpin the process of going modular.

The value systems relating to different conceptions of 'curriculum' are of especial importance to this deliberation. Such systems, or constellations of values and beliefs and the 'methods, problems and standards cherished within a community' are, according to Khun (1970, cited in Doll, 1993: 1) controlled by a paradigm. The concept of paradigms of research, or inquiry, is explored in more detail in Chapter 3. Paradigms are also of relevance to theories and conceptions of curriculum, as Schubert (1986: 170) comments, 'curriculum theory, perhaps as much as any other area of educational studies, has given serious attention to the question of paradigms'.

Schubert explains that 'in curriculum' there are 'two uses of paradigm...the *what* or kinds of substantive topics addressed...the *how* or methods of inquiry used' (Schubert, 1986: 182). In a comparative model of paradigms presented in Schubert (1986: 181)[3] three types of science (the word science meaning study or inquiry), are explicated relative to three characteristics that are embodied: the interests served; the social organisations represented; and the mode of rationality exhibited. Firstly, the empirical/analytical paradigm with a technical interest (technicist) and a social organisation valuing work is distinguished. Second, is a hermeneutic paradigm serving 'practical interests' and an interactive social organisation. Thirdly, there is the critical paradigm, where the interest is emancipatory and the social organisation focused around power.

Each of these paradigms would have a set of answers for the 'what' curriculum question. In particular this would include the underlying assumptions about knowledge reflected in each paradigm, and the constitution of groups of participants in the curriculum decision-making processes. A newly emergent fourth perspective, post-modernism, has, on the basis of its 'epochal sweep' been called a 'megaparadigm' (Küng 1988, cited in Doll, 1993). According to Doll the implications of a post-modern perspective for education and curriculum are 'enormous but by no means

clear'. However, Doll believes that postmodernism will bring a new sense of 'educational order', with new relations between teachers and students, 'culminating in a new concept of curriculum' (Doll, 1993: 3).

The significance of these paradigms to this study is that the process of modularisation can be viewed through the lens of the underpinning assumptions in each paradigm. Each would confer a different set of characteristics on the process. The technicist paradigm which is rule- and efficiency- orientated, might for instance, favour the approach where the existing curriculum is simply 'cut up' into smaller 'chunks', without challenging the underpinning assumptions about knowledge or the power relations between teacher, learner and other potential role players in the curriculum process. When such an approach is juxtapositioned with the goals for transformation of the education system, as espoused in the policies in South Africa there is a considerable conflict of intent. The assumptions that underpin the hermeneutic and critical paradigms appear to be more consistent with the ideology of curriculum transformation, learner empowerment and socio-political redress, and the pivotal approach espoused in the policies for higher education in South Africa.

The 'how' question as to the nature of curriculum inquiry is likewise relevant to this study. It would be incompatible with the ideas expressed above, that the process of transformation should be shaped by the values of the hermeneutic/critical paradigms for curriculum theory, if the research into modularisation were driven by values consistent with the empirical/analytical paradigm. In Chapter 3 a variety of approaches to research are discussed, and it is argued that the conduct of this study aspired towards an hermeneutic approach.

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[3] The Comparative model of paradigms draws together the work of Hultgren (1982); Giroux (1980); Bernstein (1976); and Habermas (1971) presented in Schubert (1986)

1.5 The pressure for change

Hedge (1987:10) claims that 'the most constantly reiterated clichés of our time concern the inevitability, pace and desirability of change'. Whilst this comment is perhaps pertinent, the plurality of pressures for change cannot be denied. Notwithstanding the policy environment setting the stage for change in the education system in South Africa, there are pressures on a global scale. For instance, Smit (1996) states that Pitroda claimed in a keynote address at the *Oxford International Conference on Education and Development: globalisation and learning* (1995), that the world is changing drastically, and that 'touchy questions' should be asked because current education systems have been outlived. Currently education creates people who look for jobs instead of people who have the expertise to make jobs. Furthermore, according to Pitroda, education creates jobless people and that, in the current context of information growth and rapid technology development, the education that is offered becomes irrelevant (Smit, 1996).

Likewise, according to Smit (1996) at the same conference Sir Christopher Ball also invoked interesting thoughts concerning the future of curriculum planning. Smit explains that Ball focused on the need to create learning societies in which everyone is motivated and able to practise lifelong learning. He predicted that those organisations that do not become learning organisations will not survive in the 21st century; those schools, colleges and universities that do not put their students first will not recruit. To meet the challenges of increased globalisation and international trends education systems will, amongst other things, have to make substantial behavioural changes and develop new methods of teaching and learning. Ball himself has described this as the need for higher education institutions to focus on their 'fitness for purpose' (Ball, 1985). These ideas are consonant with those upheld in the South African education policies.

Pressure for change can also be identified as emanating from Business Organisations. According to, for example Schwahn and Spady (1998: 5), to compete and stay in business, organisations have to become 'nimble' through

being future focussed, monitoring emerging trends on a constant basis, and operating on a set of principles that no one had yet defined. A prominent concept for organisational response to this pace of change, that of a 'learning organisation' was established by Peter Senge (1990). A learning organisation is based on embedding principles such as: vision, values and integrity; dialogue; and systems thinking in practice that breaks the mould of old behaviour. A successful learning organisation will promote adaptation and improvement of the organisation together with its people by actively establishing a community of continuous learners and fostering a change in the way people think.

The global arena of education has not remained unaffected by change. According to Fullan (1993):

> Change is ubiquitous and relentless, forcing itself on us at every turn. At the same time, the secret of growth and development is learning how to contend with the forces for change - turning positive forces to our advantage, while blunting negative ones. The future of the world is a learning future (Fullan, 1993: *vii*).

Fullan finds it remarkable how far the study of educational change has come since the 1960's. He believes that it has 'brought us to the beginning of a new phase which will represent a quantum leap - a paradigm breakthrough- in how we think and act in relation to change'. He perceives that this is a world where 'change is a journey of unknown destination...it is a world where change mirrors *life itself*' (Fullan, 1993: viii). Furthermore, Fullan later adds that there is abundant evidence that 'educational change is inherently, endemically, and ineluctably *non-linear*' (Fullan, 1996: 421). Thus, he asserts that educators need to raise their consciousness and insights about the totality of educational change, and to develop the capacity to deal with change, in short to become 'skilled change agents'.

Further complexity in the notion of change is signalled when the attribute proposed by Fullan above, that of educators to be skilled at change agentry, is considered together with the ideas of Doll (1993). Doll envisions curriculum being based in an open systems paradigm in which transformation, not a pre-

set course of action seeking 'the perfect product' is the rule (Doll, 1993: 15). Doll declares that:

> The linear, sequential, easily quantifiable ordering system dominating education today - one focusing on clear beginnings and definite endings- could give way to a more complex, pluralistic unpredictable system or network. Such a complex network will, like life itself, always be in transition, in process. A network in process is a transformative network, continually emerging...prediction and control, key elements within the modernist curriculum model, become less "ordered" and more 'fuzzy'...a whole new sense of order emerges...an asymmetrical, chaotic, fractal order...in the post-modern sciences (Doll, 1993: 3).

It seems pertinent at this point to return to the notion of 'reiterated clichés' (Hedge, 1987) for it is essential that the challenges for transformation in South Africa are given substance. Whilst political and social ideologies such as redress, equity, and access to education are undeniably crucial to the transformation of the education system there is a danger that those principles are only translated into 'bumper-stickers': empty cliché slogans used to liberally season institutional policy documents without effecting any real change. A major part of the transformation will be curriculum innovation, a radical rethinking of not only what is taught but also the way in which it is taught. To borrow another phrase from Hedge (1987: 13) South African education is 'standing at a curriculum crossroads'.

Modularisation as a force for change

The emphasis in this study is curriculum innovation through effecting a shift from the rigidly subject-based curriculum delivery framework of the past to a flexible, credit-based modular system. It is important to establish that the fundamental principles on which modular innovation is based closely match the principles for transformation. The question that is then raised is 'can modularisation be a force, or a vehicle, for change?' Krachai (1987) helps to illustrate what must be considered:

> For it to fulfil an enabling role modularisation must be part of a comprehensive rationale for change, not merely a vehicle for introducing new learning styles and assessment techniques within the existing examination structure...For modularisation to be *the* force of change it must possess various qualities and provide certain opportunities (Krachai 1987: 18).

In essence the overarching purpose of this study was to explore the nature of those qualities and opportunities, and to reveal the underlying principles of modularisation with a view to effecting transformation.

1.6 Summary and overview of Chapters 2 -7

This chapter has sought to explain the background to, and purpose of, this study from several perspectives. Firstly, the milieu for the development of policies for higher education in 'the new' South Africa was outlined. Secondly, the philosophy and values that specifically underpin technikon education were presented. The third perspective was the relevance of the development of modularity and credit in Britain and the US to the shift from an élite to a mass system for higher education. The rationale for the study was then further contextualised within the differing paradigms of curriculum. The chapter closed with a brief exploration of some of the pressures for change in education. This chapter also endeavoured to highlight that the purpose of the study was to seek insights into the concepts, principles, benefits and drawbacks of modularisation, not to find the 'perfect model'.

In the chapters that follow these points are further elaborated. In Chapter 2 relevant literature is reviewed in order to elucidate the features of higher education in Britain and the US, and to begin to explore the nature of modularity. It is important to note that, the literature review focuses mainly on publications between 1987-1997, to keep the body of literature manageable.

In Chapter 3 the attention shifts to the research methodology. The plurality of paradigms that guide inquiry are considered, together with some of the characteristics of both qualitative and quantitative research methods. A brief discussion of the concepts of reliability, validity, triangulation and ethics closes the chapter. These ideas are further extended in Chapter 4 through an explanation of their application in the context of the study which was conducted at five 'new' universities in Britain.

In Chapter 5 an analysis of the data gathered in the study is presented. The two sections of the chapter discuss the data collected, firstly that from

questionnaires and interviews with respondents, and secondly from an analysis of the documents provided by respondents. Chapter 6 explores the themes to emerge from the research and the implications for M L Sultan Technikon. The closing chapter offers signposts to other important issues related to modularisation in the form of a postscript.

Chapter 2: Literature Review

2.1 Introduction

In Chapter 1 an outline of the rationale for this study was presented. One of the salient points to which attention was drawn was that from the outset the purpose of the research was not to seek a blueprint for modularisation to be imported wholesale. The aim was to draw on international experiences to inform the process of development of modularisation at M L Sultan Technikon, through the identification of the cardinal strategic issues to be considered. The investigation sought to critically reflect upon: a shift from élite to mass education with multi- access and exit points; the concepts; principles; strengths; weaknesses; exemplars of good practice; and the potential problems of modularisation.

To achieve this aim data from three chief sources of evidence: the literature; questionnaires and interviews; and documentation provided by the five universities in the field-study, has been triangulated. The purpose of this chapter is primarily to explore through the literature the emergent trends and developments in modularisation and to present some aspects of the 'current knowledge' of, and 'questions about', modularisation (Bell J, 1987: 18). Firstly, this information will become a framework within which to contextualise the findings of the study. Secondly, it will be the foundation for the critical analysis and interpretation of the data that is presented in Chapter 5.

This chapter has four main sections. In the first section the question of élitism and egalitarianism and the emergence of modularity will be briefly considered from the perspective of a comparison of the history of the higher education system in the United States (US) and that in Britain. In this comparison some of the notable elements of the 'conceptualisation of modularisation in the US' will be outlined, thus addressing one of the research questions[1]. In the second section the concepts, principles and determinants of good practice in modular curriculum frameworks will be explored from the perspective of

literature emanating from Britain. Thirdly, some of the strengths and weaknesses will be highlighted through focusing on literature relating to staff and student attitudes to modularisation. In the concluding section the main points will be summarised.

2.2 The evolution of the higher education systems in the United States and Britain: élitism and egalitarianism

According to the HEQC (1994a) a precedent has been established where the influence of British higher education on America in the 19th century, and conversely since the 1960s, the influence of the American higher education system on that in Britain is acknowledged. That precedent is observed in this chapter by outlining the evolution of the higher education systems in the US and Britain and by highlighting the development of modularity in the two countries.

There is a detectable trend for American educational events to be reflected in British practice as illustrated by the simple example of the late 1950's 'post-Sputnik' experience in the US stimulating the emergence of the British Nuffield Science projects in the 1960's (Holt, 1988). Whilst at different points in history the system in one of the two countries has had undeniable influence on the other it is important to be mindful of making simplistic comparisons between them which may, as Moodie (1991: 1) warns be, 'both perilous and potentially productive'.

Some of the perils lie in the pertinent characteristics of the post-secondary or higher education systems in the two countries[2]. While on the one hand the system in the US appears to be relatively simple that in the UK is complex, with differing systems in Scotland, Northern Ireland, England and Wales. Indeed it has been asserted that few people have a reliable understanding of

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[1] The research questions that this study sought to elucidate are discussed in Chapter 4.

[2] Notably not even the term 'higher education' has precisely the same meaning in both countries. As Moodie (1991: 2) points out what in Britain would be termed 'non-advanced further education' would in the USA be included in the 'higher education' category (as 'specialised institutions' and 'two year colleges'). Much of what the curriculum in the freshman year in a USA college covers is included in the senior years of the secondary curriculum in Britain.

all the constituent parts of the British system and how they are connected. Thus, as Cuthbert (1991) explains the danger lies in:

> Comparing a system built on egalitarian principles from the top down...with a system evolving much more slowly with élitist values from the bottom up. The more comprehensible structures of the US system seem to allow many more possible routes between recognisable entry and exit points...The British system, by comparison, is a jungle of criss-cross paths with unexpected entrances and exits, where even experienced guides have only incomplete maps (Cuthbert 1991: 117)

In the US there are, according to Moodie (1991), two main systems used to categorise higher education. The older system distinguishes between four-year degree-awarding institutions, and junior and community colleges offering the first two years of a bachelor's degree. The newer Carnegie classification is more comprehensive and spans: specialised institutions (mainly a single field of study); two-year institutions; liberal arts colleges (four-year institutions that teach only to baccalaureate level); comprehensive universities and colleges (teaching up to master's degree); universities granting doctorates; and research universities (doctorates are awarded but the emphasis is on research). The last three categories are divided further into first and second rank. A distinction is also made in the US between public and private institutions, both of which thrive in each of the Carnegie categories. The public institutions are co-ordinated and regulated by the state governments with funding drawn, in part, from taxation. The private institutions are autonomous and self-governing and raise funds through fees, research grants, and gifts (Moodie, 1991).

The term 'college' is also used differently in the two countries. In Britain the term has applied to a diversity of institutions. These include the constituent colleges of the University of London, the social or academic units of the 'collegiate' Universities of Oxford, Cambridge and Durham, the numerous colleges of higher and further education, and also many of the older private secondary schools. In the US 'college' is used to mean the two- or four-year institutions of higher education. Alternatively the term embraces the 'place to which first-degree aspirants go when, after graduating from high school they 'go to college', become 'college students' and undergo 'the undergraduate experience' (Boyer 1987, cited in Moodie, 1991: 3). The US community and

junior college system is an important 'link' between high school and university. These are open to all for all kinds of educational purposes including preparation for college or university. In contrast, according to Cuthbert (1991: 117) in Britain in the early 1990's it was still the norm to go from school to university with any other route (such as further education) being regarded as 'deviant or second best'.

There is a critical difference in the relative speeds in the evolution of higher education in Britain and in the US. Whilst the major organisational changes took place in the US between about 1870 and 1910, in Britain, according to Trow, the emergence of higher education was still largely underway even in 1991. A key element of both histories is the transition from élite to mass higher education or, what Ball (1989) refers to as a 'popular model' of education.

The original notion of an 'élite to mass paradigm shift' was devised to analyse the growth of American higher education and has become accepted as part of the theory of the evolution of higher education systems taking place on a global scale (Trow, 1974 cited in Cuthbert 1991; Scott, 1995). Although, as Trow warns, 'élite' to a 'mass system'...those terms are both evaluative and descriptive and require extensive qualification in their use' (Trow 1987 cited in Barnett 1992: 5). The concept is, nevertheless, a useful tool to analyse the differences between the US and Britain.

The growth of higher education in the United States of America

In comparison, the evolution of the higher education system in the US appears to have been much more condensed than in Britain. Millard (1991) traces the history of higher education to the birth of the United States as a nation when Congress provided public lands to 'support forever education for the sake of the happiness of mankind and as essential to good government (Article III)' (Millard, 1991:58). The first higher education institutions in America were private, and like their British counterparts, were primarily designed to prepare learners for the clergy and law.

As stated earlier, the main organisational changes took place between 1860 and 1910 (Trow, 1991). A major thrust in broadening access came from the federal government in the form of the 1862 and 1890 Land Grant Acts which provided land to establish colleges for the children of mechanics, farmers and other citizens. This development had the effect not only of opening doors to those previously barred but also of broadening the classical curriculum to include, for example, the natural sciences and modern languages. Significantly the latter part of the nineteenth century marked a shift away from the English model of education to that of Germany with a renewed emphasis on quality in contrast to access (Millard, 1991).

According to Millard (1991), access and equity were not major concerns of the nineteenth century or the first half of the twentieth century. But Trow (1991) asserts that by 1900, although only 4% of Americans of appropriate age were attending college, both the central organisational and structural framework for a system of mass education were mostly in place. Furthermore, Trow points out, underpinning the structural development was the spirit of competition, institutional diversity, responsiveness to markets, and institutional autonomy marked by strong leadership and a diversity of sources of support. This contrasts markedly with Britain where some of these principles were not even fully developed some 90 years later.

Trow (1991) argues, therefore, that the US had the structural features of a higher education system long before it had mass enrolments, all that was needed was growth in student numbers. This came at the end of World War II when access was opened up to returning veterans and there was a rapid increase in enrolments. Enrolment continued through the period from 1957-1968 which was, according to Millard (1991: 61), the 'most rapid expansion in the history of higher education'. One dominant factor at this time was the impact of the post-war 'baby-boom'. A second driving force for expansion was the shock of the launch of Sputnik. This experience led to a rapid realisation that there was a pressing need to strengthen the quality of higher education, in particular in the sciences, engineering and technology. Thus between 1960 and 1970 college enrolments increased by 126%, from 3 789 000 to 8 580

000. The public institutions and the two-year community and junior colleges, experienced the most rapid expansion.

There were two other notable moments in the history of education in the US which galvanised change. One was the birth of the civil rights movement with the focus of attention on access to higher education for minorities and underprivileged groups. The other was the effect of the Vietnam war on challenging the curriculum, the structure, the relevance and the social commitment of higher education (Millard, 1991). The combined incentives to broaden access had the result that by 1991 there were approximately 12.5 million students in higher education. This represents over 40% of the relevant age group (Moodie, 1991) and using Trow's parameters[3] this percentage indicates the establishment of a universal system. Although according to Millard (1991) only 2 million of those were traditional 18- to 22- year-old full-time resident students. This indicates that the number of part-time students is significant and points to many related implications for institutions, such as refocusing their mission, and raises questions about relevance, quality and the outcomes of higher education (Millard, 1991). These are issues that certainly resonate with those that have been identified recently in both Britain and South Africa.

Thus what Rothblatt calls 'the world's first mass-access higher education system' was developed. He identifies several special characteristics that enable American higher education to be regarded as a *'system'* (his emphasis). Some of these include: market discipline; diverse sources of funding; competition for students, a process of 'articulation' allowing students from one kind of college or university to 'transfer' to another without loss of time; and the absence of a common 'idea' of a university except 'service' to 'society' (Rothblatt, 1991: 129).

Embedded within the above description some features of modularity can be identified, in particular, the ability to transfer from one institution to another.

But, Rothblatt (191: 130) asserts that the modular organisation of the higher education curriculum in the US is now taken for granted as a 'basic and timeless feature' with few people who are conscious of its origins and functions. He points out that the modular system can only be appreciated as a special creation of American history and society, importing local and national tensions into colleges and universities while also providing for alternatives and digressions (Rothblatt, 1991).

The word 'modular' for the structure of courses is not commonly used in the US and indeed the origins of the word are vague. This is significant in comparison to Britain. It has been argued that it may have been used first for the levels of education below higher education, or that it is possibly a British import to America, or an import subsequently exported to Britain where the word is assumed to be American in origin (Church, 1975 cited in Rothblatt, 1991: 130). Furthermore, whilst in the 1930's the terms 'unit system', 'college hour system', or 'time-exposure system' were used, today the Americans say 'course system'[4]. More recently, terms have emerged such as 'credit unit' or 'course unit' but like the word 'modular', their precise meaning is vague Rothblatt (1991: 130).

Rothblatt explains that any degree programme may be 'chopped into modular bits' and that the word 'module' does not necessarily convey the American meaning of a degree programme that is actually built upward from the bottom of the curriculum (Rothblatt, 1991: 130). The degree itself is a container for the collection of modules from different parts of the study list such as the 'major', free electives and choices from a range of depth and proficiency requirements. He also points out that on its own the term 'modularity' does not convey anything about 'articulation', an early twentieth century word for the process by which a module, as a unit of exchange, facilitates transfer mechanisms. From this feature of American higher education curriculum

[3] élite systems: enrol up to 15% of the age group; mass systems: enrol 15 - 40% of the age group; universal systems: enrol <40% of the age group (Trow cited in Scott, 1995:2).
[4] In Britain the word 'course' is more closely related to the American word 'programme'

modularity acquired the designation 'credit transfer' system. A brief outline of the development of this system in the US is given in the section below.

The emergence of modularity in higher education in the US

As explained in the section above the first higher education institutions in America were private, and until well into the nineteenth century they operated on the classical British curricular model (Millard, 1991). The undergraduates were divided into year cohorts and studied specified subjects each year. Although this system persisted beyond the middle of the nineteenth century, in the 1820's some institutions began to explore alternatives such as parallel subject tracks with elective choices. This was possibly influenced by practice originating at Edinburgh University where there was a 'voluntary system' in the early eighteenth century.

So, at Harvard for example, an elective system was introduced in 1869 to increase student choice and move away from the traditional fixed curriculum (Anthony, 1992; Crossley *et al,* 1993; Bell and Wade, 1993; Jackson and Gregg, 1995). This change is interesting, and might, when viewed through the lens of the curriculum paradigms that were introduced in Chapter 1, be argued as representing a shift in ideology away from a technicist approach to the principles and values of learner empowerment.

Rothblatt (1991: 131) argues that the introduction of such 'consumer choice' into the curriculum was an aspect of the transformation of American society from a grouping of colonies to a self-governing federal union. He cites Brubacher and Rudy (1976) to explain that the introduction of electives has been called:

> The central educational battle of nineteenth century America...the question which aroused the greatest amount of controversy [and] inflamed passions as no other educational issues was able to do (Rothblatt, 1991:131).

By the nineteenth century there were many different ideologies associated with voluntarism and consumerism (Rothblatt, 1991). These different ideologies are explained by Rothblatt as being many ways in which electives were used and many different types of elective systems in operation in

America. The differing elective systems reflected a range in the amount of restriction, or of choice, allowed. This is interpreted to mean that the extent of consumerist choice, or voluntary control over the curriculum, varied from institution to institution and across degree programmes. Rothblatt (1991: 131) substantiates this by explaining that 'as in Victorian Britain, separate degree programmes were used to protect the historic BA standard', but, he adds, other possibilities, 'compulsory modules with optional modules or tracks, providing full, limited or no choice' were also in evidence. Scott (1995: 154) links the notion of consumerism and increased student choice to 'epistemological power', which supports the suggestion that these developments might be contributing to a paradigmatic shift in the conception of curriculum.

Furthermore, Rothblatt asserts that Americans have:

> Never ceased to tinker with combinations of electives and requirements, ways of joining or separating modules, ever since that famous (or infamous) day on which the diversified curriculum of the present first revealed its educational and administrative potential (Rothblatt, 1991:132).

However, as Rothblatt further explains, the story of the development of electives is only part of a larger development:

> First, elective parallel tracks had to be completely broken down into discrete parts (the American 'courses' of today) in order to become self-contained modules where teaching and examining were combined...Examinations were more or less uncoupled from the degree and instead attached to modules where every kind of evaluation was possible...and the net effect...was a reinforcement of the practice of continuous assessment...A second and essential step was providing for articulation, so that students could move modules from one kind of institution to another, generally to improve their social or career opportunities...to encourage upward academic mobility, it was essential to have institutions of great variety,...standards...cost...location, responsive to very different kinds of educational markets. Otherwise no useful service was performed in having the student exchange one kind of educational experience for another (Rothblatt, 1991: 132)

In the US modules were given an arithmetic equivalent to connect teaching to hours of instruction around 1870. Initially these units of credit appear to have been an exclusively internal means of determining the relative weighting of modules. Because, as Rothblatt (1991; 132) says, 'severed from parallel course tracks, modules threatened the higher education system with chaos'. A major concern was that unless limits were assigned, undergraduate

workloads would be too high. So, academics in America began to grapple with the problem of defining a 'work load'. The issue of student workload and assessment is discussed briefly in Chapter 7.

The use of units to define transfer work is one of the features of the 'Progressive Era' from 1900 to World War 1. At that time the Carnegie Foundation for the Advancement of Teaching was active in promoting a common national measure so the term a 'Carnegie Unit' came to be synonymous with the unit of credit (Rothblatt, 1991, Jenkins and Walker, 1994). According to Holt (1988) a 'Carnegie credit' amounts to 120 contact hours. The credit units provide flexibility in the process of accumulation because they allow for the simple calculation of an overall measure of achievement and allow for module transfer (Rothblatt, 1991). So, in the US the elective system, the modular course, and credit accumulation and transfer based on the transcript of grades were all in place by 1900 (Trow, 1991).

Therefore, the characteristic elements of the American education system can be summarised. They include, inter alia, flexible study arrangements for a wide range of students (including broken programmes of study), the ability to assign meaningful and representative credit to discrete modules or units, and assessment methods that allow students to be assessed on their performance at the end of each module (Crossley *et al,* 1993). These features are underpinned by features such as the spirit of competition, institutional diversity, responsiveness to markets, and institutional autonomy marked by strong leadership and a diversity of sources of support. These elements form the curricular structure that is today, according to (Rothblatt, 1991: 134), 'a way of life for millions of young persons and for the entire academic profession'.

The growth of higher education in Britain

The early history of higher education in Britain can, according to Barnett (1992: 214) 'be read as a continuous and *uniform* history' (his emphasis). This could be interpreted as being a growth curve with a long lag phase of some 850 years and with exponential growth initiated in the second half of the

twentieth century. However, as Scott (1995:1) reflects 'the transformation of British higher education during the past two decades has been intense, but remains curiously incomplete'. The apparent exponential growth is actually characterised by discrete events and changes in the policy environment and perceptions of higher education that Jackson (1997: 2) terms a 'step change' that will continue into the next millennium.

This history may be traced from the thirteenth century, with the creation of a few Oxford and Cambridge Colleges through to the fifteenth century when three universities had been founded in Scotland with a primary goal of training the clergy and teachers (Allen, 1988; Watson K, 1989; Scott, 1995). Two hundred years ago there were still only six universities, enrolling less than 5,000 students and in no sense forming a system. At the beginning of the last century the number had risen to fourteen universities with 20,000 students (Scott, 1995).

The majority of civic, or red brick universities, closely linked with the new industrial cities, did not become established until the end of the nineteenth century (Watson K, 1989). At that time three shifts occurred which created the real demand for universities and shaped (and still shape) the development of the system. The first was the 'democratic revolution with a progressive extension of the franchise and a growing emphasis on education'. The second was the industrial revolution creating the demand for 'labour based on expert skills' and leading to the development of the technological universities and the former polytechnics. The third was the 'rise of [a] professional society with the growth of the organised professions' and of a bureaucratic state which created new training needs (Scott, 1995: 12).

By the early 1960's there were twenty-four established universities (and six in the process of formation) which were still essentially selective and academic (Watson K, 1989). At this time only four percent of the age group was enrolled in any form of higher education, a figure that is still well within the participation index of an élitist system as defined by Trow (cited in Scott, 1995).

The critical juncture, where the gradient of the higher education growth curve became steeper, was 1963, interestingly a time that also corresponds with the beginnings of the study of educational change as identified by Fullan (1993), and highlighted in Chapter 1. One stimulus for this change was that the Conservative government then in power had a major concern that the élite system was one cause of the poor economic performance of the country. Thus, a review commission, chaired by Lord Robbins, was established with a brief 'to review the pattern of full-time higher education...in the light of national needs and resources' (HMSO, 1963 cited in Watson, K 1989: 286). This commission played a major formative role in the massive expansion and restructuring of the higher education sector.

The recommendations of the 1963 Robbins Report were grounded in four main objectives[5] that find resonance with the recent recommendations for the transformation of higher education in South Africa as discussed in Chapter 1. These objectives were translated into proposals for: the creation of new universities and expanded student numbers; academic freedom and institutional autonomy; the establishment of a Council for National Academic Awards (CNAA); and student finance and institutional management (Ball, 1985 & 1989; Fulton, 1991; Duke, 1992; HEQC 1994a; Scott, 1995).

However, the notion of higher education still only included the universities, the teacher training colleges and the colleges of advanced technology with the important role of the technical colleges marginalised. According to Robinson, (1968:12) the Robbins Report:

> Assumed that higher education was only for an élite minority, and that we should merely try to increase the size of this élite. Nobody had yet suggested the slogan 'higher education for all' and the reason for this is that nobody has yet dared to think of 'careers for all'. Our education system is based on the assumption that a few people will have interesting worthwhile careers and the remainder will merely have jobs or be unemployed.

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[5] These were: instruction in skills; the promotion of the general powers of the mind; the advancement of learning; and the transmission of a common culture and common standards of citizenship (Ball, 1989)

In response to the stimulus of the Robbins Report the number of universities grew from 22 to 45 including, for example, the establishment of the internationally acclaimed Open University in 1969, and Colleges of Advanced Technology that were upgraded to university status (Watson K, 1989). The new universities had novel ideas about accommodation, course design and assessment, and management structures. Individual universities also changed their shape, role and size to the extent that within the decade enrolment grew to over sixteen percent of the age group and into the lower margins of the range for a mass system.

In 1966 a government White Paper on Education marked a further step in the shift to a mass system. This milestone policy allowed a crucial departure from the proposals of the Robbins Report through the large-scale development of higher education outside the university sector by upgrading the regional Colleges of Technology, Arts and Commerce to create thirty polytechnics (Robinson, 1968). Thus a separate, but equal, public sector system of higher education with the opportunity for even greater expanded student numbers at reduced costs was created (Ball, 1985; Watson, K 1989).

However, the promised equality was elusive and the plural system became generally known by the deceptive term 'binary system' (Robinson, 1968; Watson K, 1989; Cuthbert, 1991). As Scott (cited in Cuthbert, 1991:120) asserts the 'misleading habit of referring to a 'binary system' is that it implies a system neatly and symmetrically divided into two homogeneous sectors'. In fact the two sectors were far from homogeneous and the more commonly used descriptor was the 'binary *divide*' because there were some key differences between them. For example, the universities enjoyed charter status and were empowered to both offer courses and award degrees without the need for external approval or validation. The polytechnics designed and taught courses which had to be approved by the Secretary of State and validated by a powerful body called the Council for National Academic Awards (CNAA) (Ball, 1985; Moodie, 1991; Scott, 1995). They were also under the control of the local education authorities until the 1988 Education Reform Act (Cuthbert, 1991).

So in the 1970's the process of evolution of a coherent higher education system was still not fully accomplished. Nevertheless, the polytechnics had a distinct contribution to make to higher education. For example, they offered more practical subjects and professional courses at degree level, often not based on single subjects but an on a combination, for example engineering design or medical technology. Important emphasis was placed on developing close links with industry through sandwich courses and on being responsive to the needs of students in making major policy considerations. Such policies included developing flexible and part-time provision and offering courses at a variety of levels including, for example, higher national certificate and diploma as well as degrees (Robinson, 1968; Barry, 1981). In this way the polytechnics were similar to the technikons in South Africa, as highlighted in Chapter 1. There was a formidable strength in the polytechnic sector which Keith Watson (1989: 292) captures in the following comment:

> The rigorous standards applied by the CNAA not only to the validation of courses but also to the evaluation of institutions, staff appraisal and curriculum design were far in excess of the standards applied in many universities.

The growth of higher education was further revived and intensified during the 1980's, in part spurred by the critical and challenging 1983 Leverhulme Report. The report contained far reaching strategic proposals for higher education which aimed to encourage access, reduce specialisation, maintain quality, stimulate research, promote institutional development plans, develop responsiveness, increase efficiency and encourage leadership. A leading issue discussed in the Leverhulme Report was whether higher education should adopt a centrally planned model or a market controlled system. Merit in both approaches was identified and a balance between them was recommended (Ball, 1985).

Another vital factor was an increased intervention on the part of the government, through for example the establishment of what Jackson (1997: 8) calls the 'instruments for pursuing its expansionist policies', the two Funding Councils, one for Universities and one for Polytechnics

The changes continued to accelerate during the watershed years of 1991-1992. In particular with the publication of the 1991 government White Paper which, as Jackson (1997:8) points out:

> Set out its plans for the removal of the binary line, laid the foundation for a mass system of HE and for establishing a national quality assurance framework which would be applied to the whole of the HE system...The framework established in 1992 reflected the political ideology of public accountability and market concepts which have been applied to the whole of the public service sector.

The plans were realised by the 1992 Further and Higher Education Act which dismantled the binary system and upgraded the former polytechnics to universities with the authority to award their own degrees[6]. The Funding Councils were reshaped into three regional Higher Education Funding Councils (England, Scotland and Wales) and the Higher Education Quality Council (HEQC) was also established (Jackson, 1997).

This history therefore illuminates how change, as Jackson (1997: 1) comments, 'has been 'driven' by political aspirations for an expanded, more cost effective system which was more closely aligned to the needs of society'. Thus, social, political and administrative revolutions have been accomplished and a unified higher education system has been created. In this way almost three-quarters of the universities in Britain have been established in the last three decades in, as Scott (1995: 11) puts it, 'less than the span of an academic working life'. But, Scott also notes, 'the result is a disjunction, even a paradox [and] British higher education has become a mass system in its public structures, but remains an élite one in its private instincts' (Scott, 1995: 2).

The emergence of modularity in higher education in Britain

In Britain modular developments can be traced through each of the three sectors: higher; further; and school education. A brief summary of the modular developments in the school and further education sectors is presented in section 2.2.5. Such developments have a bearing because, as Jackson (1997: 2) points, out higher education does not 'operate in isolation

from the society in which it serves [and] there have been many changes in the rest of the education system which affects HE'. One example that illustrates this well is that by the mid 1990's many universities had developed educational missions to offer a broader portfolio of higher education opportunities and formalised 'franchising' partnership arrangements with further education colleges, which in turn were developing franchise relationships with the schools.

It is helpful at this point to single out the significant policy milestones that played important parts in the development of modularisation, unitisation and credit accumulation. Jackson and Gregg (1995: ii) argue that the first developments towards modularity came 'after the visionary Robbins Report of 1963'. Although the effects of the recommendations of the report on curriculum structure, student flexibility and credit transfer were relatively limited at the time, the Robbins Report provided the platform for modularisation, credit transfer and curriculum innovation upon which institutions have steadily built (HEQC, 1994a). Many of the new (post-Robbins) universities embraced course 'unitisation', delayed specialisation and greater curricular breadth, at least in the initial stages of a degree course (Jackson and Gregg, 1995).

Further influences included the work of the 1977 'Oakes' Committee which focussed on, for example, the forecasted future fall in demand from 18-year olds, such that to keep higher education buoyant it would be necessary to stimulate the participation of older students. The Committee predicted that the demand for credit transfer would increase, and so a recommendation was made to establish a comprehensive data and information source on credit transfer opportunities. Thus, a study was commissioned which culminated in the publication of the 1979 Toyne Report (HEQC, 1994a). According to the HEQC:

> The importance of the Toyne Report, and the policy analysis which initiated it, lies in the fact that it stands at the confluence of two young streams - modularity and credit

[6] Hence, in Britain pre-1992 universities are known as 'old' universities and post-92 as 'new' or 'modern' universities

> transfer. By merging these tributaries into a substantial flow, it allows the developments of the 1980's to take on a different character...It introduced some new reference points to British higher education, more openly influenced by American sources. The ideas of access, experiential learning, student mobility and credit transcripts...begin to pass into the language of policy-thinking, if not yet policy-making (HEQC, 1994a: 54).

Another influence identified by Theodossin (1981) was the June 1970 Paris Conference on Policies for Educational Growth arranged by the Organisation for Economic Co-operation and Development (OECD). He argues that the initiative for a national modular policy as a form of planned innovation can be traced to this time. According to Theodossin in the conference report and subsequent OECD literature one may trace 'a continuing argument for a movement from élite to mass higher education, in which the credit-accumulation model is seen as a fundamental enablement device'. However, it was recognised that mass higher education 'cannot be achieved solely through an increased age participation rate, but must also involve the promotion of part-time and recurrent education, as well as short-cycle higher education' (Theodossin, 1981: 89). Thus, it was argued that, with limited resources, the feasible means to extend higher education was through, for example, a linked network of institutions, with many of them providing a limited number of well-developed specialisms. The development of a credit-accumulation system to permit discontinuous education and allow for the possibility of altered curricular destination through credit transfer was seen as way of enhancing student mobility (Theodossin, 1981).

The ten Leverhulme Reports published in 1983 offered further support for, amongst other things, credit accumulation and transfer, modularity and wider access. In 1984 the National Advisory Body (NAB) Report (cited in HEQC, 1994a) identified the elements which it regarded as necessary for the further development of higher education. These included: a common credit framework; modularisation of courses in which the 'content of modules must be clearly defined'; the accreditation of prior and experiential learning; open learning; and the use of credit transcripts. The HEQC also identifies further committees and reports which have played an influential role in policy-making. These include (all cited in HEQC, 1994a: 63): Squires (1986); the joint NAB and University Grants Committee Working Party (1987); Fulton and Ellwood

(1989); Ball (1990 & 1991); UDACE (1992); CSUP (1992); NIACE (1993); and the Royal Society: (1993).

Synchronous with this unfolding policy milieu the modular and credit-based developments in the higher education institutions can likewise be mapped chronologically. During the late 1960's modularity, but not credit-based systems, developed in a small number of universities. The University of Stirling stands out as being unique because, from its inception in 1968, it has provided modular courses on a semesterised basis (Wojtas, 1993; Jackson and Gregg, 1995). Some of the post-Robbins universities took up the challenge to broaden education in the first degree. For example, Keele introduced a four-year interdisciplinary degree which was very similar to the broader Scottish degrees; Sussex University which developed a similar three-year programme; and East Anglia developed a course-unit system. Whilst developments were also taking place at the University of London at this time 'the ancient and 'red-brick' universities remained unmoved' (HEQC, 1994a: 48).

Whilst the Robbins Report had created the policy, the establishment of the Open University (OU) in 1969 as the institutional platform for further progress had a major influence on the development of modularisation. This was the first university with a credit-based modular framework which offered, amongst other innovations, credit accumulation and transfer, the award of interim certificates, accreditation of prior learning, and the issue of transcripts as records of achievement (HEQC, 1994a; Jackson and Gregg, 1995). However, apart from the pioneering OU, the development of greater flexibility and choice fell onto a small number of institutions (HEQC, 1994a).

Modular development in the polytechnic (public) sector took a different form from the universities. By the early 1970's some of the polytechnics were experimenting with modularisation and new types of qualification. Many of the academic innovators of the time put their efforts into extending access and developing the Diploma of Higher Education (as a lower exit point than the first degree) supported by modular structures and combined studies

programmes (HEQC, 1994a). Some of the prominent institutions active in spearheading developments were Hatfield, City of London, Middlesex and Oxford Polytechnics (Watson, 1989; HEQC, 1994a; Jackson and Gregg 1995; Jackson, 1996a).

According to the HEQC (1994a) whilst each of these early initiatives had distinctive characteristics certain features were common. Firstly the developments were influenced by the styles of American course organisation, evident in that: semesters or trimesters defined the length of the module; students could combine major and minor subjects, or retain joint/combined subject programmes; some elective programmes were developed; and interim awards were available (such as DipHE). For example, both Watson (1989) and Jenkins and Walker (1994: 22) point out that, as the latter put it, 'the ideas for the Oxford Polytechnic's 'pioneering' modular course grew out of the knowledge of the West African and North American experience of its first Dean'. On the other hand, these schemes were modular rather than credit-based in a conventional American sense. They permitted varying degrees of flexibility in practice and often struggled with problems of status compared with more specialist programmes (HEQC, 1994a).

By the mid 1980's Jackson notes that there was an expansion of modular course development primarily aiming to widen access to adult learners, enhance student choice and improve relevance to the labour market. Such developments included: credit-based modular structures (University of Strathclyde); modular associate student and free-standing credit accumulation and transfer (CAT) schemes (for example, Newcastle and Wolverhampton Polytechnics); and modular combined studies schemes (for example, Lancashire Polytechnic). At the same time the CNAA developed a CAT framework based on 120 credits per level and 360 credits for an honours degree (Jackson, 1996a).

During the 1990's the progress of unitisation and modularisation of higher education accelerated significantly (HEQC, 1994a; Jackson and Gregg, 1995; Jackson, 1996a) in what Sanders (1993: 6) terms the 'race to modularise'.

According to Duke (1992: 55) the prominence of funding applications being forwarded to the Universities Funding Council in 1990-1 for the purposes of the development of modularisation 'provide startling evidence of how far, and by British standards how rapidly, modularisation has caught on'. Existing modularised, unitised or combined studies programmes were expanded to embrace all (or most) of the undergraduate provision. The pre-1992 universities also began to unitised or modularised their provision (Jackson, 1996a). Such swift progress raises interesting questions, for instance, was the move to modularity grounded in conviction on the part of the institutions, or coercion from external sources. The purpose and rationale for modularity is discussed in more detail later in this chapter, and is one of the themes to emerge in this study, as Chapters 5 and 6 highlight.

Modularisation and Pre- and Post-16 Education

Whilst an in-depth analysis of modular developments in both Britain pre- and post-16 education sector[7] would be an extensive study in itself, as stated earlier, it is useful to give a flavour of developments in these sectors. As Burke and Carey (1994) observe there are implications for higher education in terms of incoming learners in the future. They assert that 'modularity has done much to change attitudes to learning and particularly to develop the role of the student in managing the learning' enabling them to become more effective learners and more able to take charge of their own learning. These are recognised attributes of 'lifetime learning', and according to Burke and Carey 'higher education institutions will need to respond and organise themselves in such a way as to give this continued access to education' (Burke and Carey, 1994: 46-47). Shackleton (1986) also advocates that the three sectors must work closely together because, as she points out, 'any modular credit scheme needs to articulate with any preceding and subsequent stages of education and training'. She believes that the more extensive the modular credit system then the less there is outside the system to articulate

[7] For the purposes of this discussion pre- and post-16 are taken as school and further education respectively. There are some overlaps between the sectors. Some sources discuss 14-19 education (see for example Spours, 1989)

with, and so 'the more likely we are to see real bridges and ladders in place' (Shackleton, 1986: 215).

So, although the primary focus of this study was on higher education it is pertinent to highlight some of the initiatives in the school and further education sectors because there is a marked similarity with some policy decisions that have been promulgated in South Africa. A brief synopsis is therefore presented below.

According to Moon (1987a: 36) one of the driving forces for modular developments in the secondary schools was the publication of an Her Majesty's Inspectorate (HMI) report which contained 'strongly worded, even polemical attacks on the organisation of the secondary school curriculum'. Moon explains that one of the roots of the problem was the development of the highly controversial Comprehensive schools to replace the Grammar and Secondary schools. The structure of the new curriculum was 'almost precisely the curriculum of the selective schools; a structure familiar and seemingly immutable' (Moon, 1987: 36). Thus, from about 1982 support for the idea of a modular curriculum has been emerging to the extent that, 'thousands of teachers and hundreds of schools' were seriously involved in implementing modular initiatives and 'an even greater number equally seriously considering the same step' (Moon, 1987a: 38). Moon goes on to say candidly that:

> It is rare and possibly unknown for an issue of curriculum structure to so catch the imagination of teachers. Courses on the modular curriculum are heavily oversubscribed, schools with any experience of the approach are inundated with enquiries. Now, in 1987 the detractors and the cynics are moving in - an illustration of just how important the ideas are' (Moon, 1987a: 38)

Some of the key initiatives to influence modularity in the school sector included the:

> Technical and Vocational Education Initiative (TVEI) which sought to link academic and vocational education by introducing a more practical and applied vocational element into the curriculum. Some resources were provided by the Manpower Services Commission (see, for example, several authors in both Nixon, 1987; and Moon, 1988. Moon 1987 a & b; Holt, 1988; Spours, 1989 a & b; Hall, 1987; and Bell & Wade, 1993);

General Certificate in School Education (GCSE) introduced in 1986 to replace 'O' Levels and CSE; awarded by a number of examining Groups (e.g. the Southern Examining Group); developments were very uneven with some GCSE's modular and others not; GCSE modules aggregated to achieve a subject grade (Spours, 1989a & b; Thomas, 1993);

Modular 'A' Levels developed by the University of Cambridge Local Examinations Syndicate as part of a 'Module Bank Scheme' based on six equal modules (45 hours contact plus 15 hours private study); three modules required for an AS level and six for a full A Level qualification; schools and colleges allowed to use existing modules (in the module bank) or to write their own (Jones, 1989, Dearing, 1996);

Certificate of Pre-Vocational Education (CPVE); three types of module: introductory; exploratory; and preparatory were developed. The absence of common rules for the attainment of a module created great difficulties and led to a lack of recognition in local progression agreements, so CPVE was not a modular system because it did not encourage credit accumulation and transfer (Spours, 1989a & b).

One momentous landmark was the publication of the report of the *'Review of Qualifications for 16-19 Year Olds'* (Dearing, 1996). This marked a 'far-reaching attempt to reform an education system crying out for change' (Pyke, 1996: 6). One major concern was that the national skills base, represented by the density of qualifications held by the population had been surpassed by those of the main economic competitor countries (Robertson, 1995; Pyke, 1996). This was compounded by a system of education and training that was in no position to respond, surrounded by 'thickets of complexity and jargon' (Dearing quoted in Pyke, 1996: 6). One of the extensive recommendations was for the introduction of a UK national qualification framework to cover achievement in the three main pathways at four levels: advanced; intermediate; foundation; and entry with equal status given to academic, applied and vocational qualifications (Dearing, 1996). In other words the strategy was, according to Pyke (1996: 6) to break down the 'academic/vocational' divide and to help employers make sense of the 'vast' array, the 'maze' of qualifications [some] 16,000 at least'. The introduction of such a framework would open up an invaluable opportunity to finally bring together academic and vocational programmes and allow learners to transfer between two traditionally separate routes. These aspirations to develop such a framework bear considerable similarity to those driving the development of the National Qualification Framework in South Africa.

According to Rawlinson (1997) Further Education (FE) is the least well understood sector of Britain's education system. In the past developments in

FE were not well known in the HE sector, partly because the traditional source of students for universities was the secondary schools. However, the post-92 universities had always been associated with the FE colleges. In part because of a shared past relationship with the local authorities (HEQC, 1994a) and also because the former polytechnics taught courses validated and awarded by bodies shared with the FE sector.

Interestingly, statistics show (Dearing, 1996) that, in an analysis of the education and training of 17 year olds conducted in 1994, the highest percentage were in FE (32%). The school sixth forms accounted for 26% with 21% spread among training programmes and the remainder not in formal education or training. This is translated into actual figures by, for example, Rawlinson who says that 'over three million people over the age of sixteen enrol at the 550 or so UK public sector FE colleges each year'. This emphasises that FE has a vital part to play at the centre of the education agenda (Rawlinson, 1997: 1).

Over the years FE in Britain built up considerable experience in, for example, managing a diversity of programmes, student choice and a variety of learning abilities. There was a focus on encouraging developments in teaching, learning and assessment; providing educational guidance and support; building relationships with external partners (e.g. employers and the local community), and responding to local social and economic needs and the employment opportunities for students. This experience, coupled with the extensive student participation figures indicate the 'potential of further education to inform further developments in higher education' (HEQC, 1994a: 75).

The momentum of developments in modularity and credit systems in FE increased most noticeably at beginning of the 1990's prompted by issues such as the separation of academic programmes from applied and vocational courses and concerns about the national skills base. The interest in credit systems arose directly in response to efforts to provide points of transfer between academic and vocational programmes for young people and adult

trainees. One important consequence of this was that an increasing number of future students arriving at university were already familiar with the routines and practices of credit-based learning (HEQC, 1994a).

In both England and Scotland there is a history of progress towards a modular curriculum for 16-19 year olds. Although the two approaches were similar there were striking differences. In England developments were led initially by the TEC and BEC[8] (HEQC, 1994a) which merged in 1983 to form BTEC, and in 1996 BTEC became part of Edexcel[9]. In BTEC awards the course design was based on groups of units within discrete vocational areas, together with the integration of core skills. A 60-hour unit of instruction was adopted as the standard measure of unit equivalence. However, although such awards were internally modular they were not seen as being modular in relation to other awards (Spours, 1989a).

Other major influences in modular developments in FE in England during the 1980's and early 90's were the:

Further Education Unit in investigating the construction of a national credit framework from first principles (FEU, 1992 & 1993; Burke and Carey, 1994);

Youth Training Scheme (YTS) (Farley, 1986; 87; Wells, 1986; HEQC, 1994a);

Open College Federation or Network which promoted access into higher education for mature and 'second chance' students (the 'Access movement') (HEQC, 1994a);

Post-16 Credit Network ; and the activities of the Welsh F*forwm* (HEQC, 1994a).

National Council for Vocational Qualifications (NCVQ) established in 1986 to produce a comprehensive framework of qualifications up to and including HND, developed primarily for the employment sector but with sufficient breadth and scope to meet the needs of individual candidates. The competence-based qualifications were made up of 'stand alone' units and the qualifications consisted of core (all candidates) and optional (employment area) units (Sauvé, 1989; HEQC, 1994a; Robertson, 1995)

General National Vocational Qualifications (GNVQ's) awarded by the Edexel Foundation (formerly BTEC), City and Guilds and the Royal Society of Arts. These are related to occupational areas rather than a specific job and provide a broad base of vocational knowledge and skills (Rawlinson, 1997).

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[8] TEC introduced units with a series of associated levels of achievement, and BEC introduced a system of modules which were closely linked around four themes with a cross-modular assignment to assure coherence of the learning experience (HEQC, 1994a)

[9] Edexcel was formed by the merger of BTEC, the leading provider of vocational qualifications, and the University of London Examinations and Assessment Council (ULEAC), one of the major GCSE and GCE examination bodies (Edexcel, 1998)

The 1997 Education Act brought together the NCVQ and the School Curriculum and Assessment Authority in a body called the Qualifications and Curriculum Authority (QCA). The QCA spans education and training from the under-fives to higher-level vocational qualifications (Tate, 1997). The purpose of this authority is to 'firm up a national qualifications framework covering both the vocational and academic approaches in a way the NCVQ, on its own, could not' (Rawlinson, 1997: 11).

In Scotland modular developments grew from the Scottish Education Department and the Scottish Vocational Education Council (SCOTVEC) which developed the 16-19 Action Plan from 1979 until its introduction in 1984 (Hart, 1988; Mack, 1989; Spours, 1989a: HEQC, 1994a). The Action Plan had a more ambitious commitment to modularisation, credit accumulation and credit transfer than, for example, BTEC. It sought to embrace all education and training for the 16-18 age group in a national scheme of modules defined in size as a 40-hour unit of instruction. Progress was rapid, in 1987 Aitken reported that over 2,000 module descriptors had been developed which included 'generalist', 'specialist' and 'integrative' modules. The module descriptor specified the level of the module, its content; the learning outcomes; and the assessment strategy. On completion students received a credit transcript. Excitement was such that Theodossin declared 'we have arrived at what is arguably the closest British equivalent of the American credit system' (Theodossin, 1986 cited in HEQC, 1994a: 76).

From 1988 SCOTVEC also promoted the Advanced Courses Development which adopted the Scottish Action Plan principles and applied them to HND and HNC awards. SCOTVEC negotiated with the CNAA for an 'articulated programme' agreement to create a seamless progression from HND to undergraduate programmes. In the same period in England and Wales CNAA and BTEC were also negotiating a reciprocal credit transfer agreement (HEQC, 1994a).

Two other relevant developments included firstly the publication of the Howie Report by the Scottish Office Education Department in 1992. This gave far-reaching proposals to join the academic and vocational pathways in a common qualifications framework based on a Certificate and a Baccalaureate (Raffe, 1994; HEQC, 1994a). Secondly, in common with the QCA in England, the Scottish Qualifications Authority (SQA) was formed in 1997 through a merger of SCOTVEC and the Scottish Examining Board, in order to develop, accredit and award qualifications which span secondary schools, colleges, training centres and the workplace (Grant, 1997).

2.3 The purpose, concepts, principles and good practice of modularity

Over the years the literature on modularity reveals interesting shifts in the conceptualisation of modularisation, the evolution of terminology relating to modularity and changes in interpretation of those terms. These changes potentially relate to the principles and values (the ideologies) which underpin the different paradigms of curriculum that were outlined in Chapter 1. Since each paradigm is rooted in different ideologies, it might be expected that each would confer different terminologies on describing, or defining modularisation. A simple example of this might be that the terms used from a technicist perspective would emphasise a mechanistic 'cutting up' of existing courses, whereas from a different perspective the terminology would emphasise promotion of educational principles and learner empowerment.

As Watson (1996: 6) explains, attempting to clarify the meaning of 'modularity' is exploring what he has called 'an ideologically contested term'. There are of course several potential hazards in presenting concepts and definitions as being either 'ossified' or universally accepted as even, for example, the Higher Education Quality Council, were reluctant to do despite receiving many requests. They explain three reasons for this reluctance to offer definitions. Firstly, that it might be 'misconstrued as an attempt to impose an orthodoxy in the use of language with respect to matters which are still evolving and which remain contested conceptually' (HEQC, 1994a: 117). Secondly, that the search for common ground might result in over-simplification. Thirdly, that the

undertaking may fail to capture vernacular differences or may misinterpret the interpretation of the terms. Such reluctance can also be traced back to the CNAA (1989: 26) who commented that, in view of the pace of developments, if it is ever possible to write the 'state of the art' paper on modular courses, the time for doing so is almost certainly not now'.

Thus, despite the inherent difficulties it is beneficial to scrutinising the various ways in which modularity has been conceptualised for several reasons. Firstly, because different perceptions of the purpose of modularity can be revealed. Secondly because it provides a handle on the spectrum of types, scope and complexity of modular arrangements that have emerged. Thirdly, because over the years the complexity and sophistication in the concepts and terminology of modularity has changed. This synopsis of the literature helps to establish a conceptual framework in which to contextualise the analysis of the data presented in Chapter 5.

The purpose of modularisation

Synchronous with the increased pace in the development of modular structures from the mid-1970's through to the 1990's other significant changes were apparent. For example, as CNAA (1990: 6) points out, 'the enhanced interest in modular structures of the 1980's was in circumstances and for reasons different from those at the height of the 'container revolution' in the mid-1970's'. This is explained in more detail below.

In the early years the developments were tentative with only the somewhat different American experience to offer real signposts (CNAA, 1990). Modular developments in the 1970's appear to have been grounded in what Squires (1986: 6) refers to as 'a more general climate of experimentation and innovation'. There were both administrative and academic rationales (and likewise critiques) for modular structures. Some of the administrative issues identified by Squires (1986), include the elimination of duplication of teaching and the administrative flexibility to change a module rather than a whole degree course. The key strategic issues for fostering academic (or educational) development at that time were, according to Watson (1985 &

1989), associated with the ideology of credit accumulation, progressive assessment, and student choice. This phase, that Waterhouse identifies as 'Phase 1 Modularity', was based on arguments for flexibility, choice, new subject combinations and inter-disciplinarity. At this time the large-scale modular schemes at the City of London and Oxford Polytechnics were developed. At, for example, Sunderland and Manchester Polytechnics the Modular Combined Studies Degrees were initiated, and Hatfield Polytechnic adopted modularity as an organising principle for most of their work (Waterhouse, 1986 cited in Watson, 1989: 133).

In the early 1980's the recommendations in the Leverhulme Reports together with those from national bodies such as CNAA were major contributors to the push to consider 'radical alternatives' to single honours degree courses of three-years duration (Watson, 1985). At this time there was also a significant shift in the purpose of modular developments. The interest in modularity now lay not so much in a search for academic flexibility as for institutional economies. As CNAA (1990) points out although student choice still remained an important consideration the paramount emphasis had become one of changes in the system which required attention to questions of administration, the efficient deployment of resources, and the maximising of opportunity within tighter management control. This appears to highlight that a shift was occurring that allowed the ideology for modularisation grounded in educational principles to be overtaken by technical and managerial requirements. This is discussed in more depth in Chapter 6.

In the mid 1980's, according to Jackson and Gregg (1995) besides enhancing student choice modular course developments had the primary aim of widening access to adult learners, and improving the relevance of the courses to the labour market. As Squires (1986) terms it a shift from 'intrinsic' educational or administrative factors to 'extrinsic considerations'. This phase, that Waterhouse (Waterhouse, 1986 cited in Watson, 1989: 133) terms 'Phase 2 Modularity', was characterised by being based on arguments for retrenchments, cuts, declining resources, declining student numbers and rationalisation. Waterhouse argues that ultimately 'sheer survival' was the

major issue. The important implication of this for modularisation was that modular courses were no longer being planned 'from scratch' but by merging and amalgamating pre-existing courses. So, for example, during this phase:

> the Middlesex modular scheme was put together out of four pre-existing courses - two modular and two non-modular...and if now a whole institution, as Wolverhampton Polytechnic has done...resolves to modularise its whole course provision, it starts with a portfolio of courses which looks virtually complete (Waterhouse, 1986 cited in Watson, 1989: 134).

In 1986 Squires commented that modularity as an innovation which apparently has quite a lot to recommend it, and as the dominant pattern of curriculum in other countries and sectors of education, had made relatively little headway in higher education in Britain. By the advent of the 1990's, with a growth in modular and unit structures in schools and further education (CNAA, 1990) as outlined in Section 2.2.5, and an even wider international experience of modular programmes, the picture in British higher education had changed significantly.

Further acceleration in the restructuring of the curriculum occurred after 1992 in that more than fifty percent of the introduction or expansion of modularised courses occurred (Jackson and Gregg, 1995). Thus, most 'old' universities had developed some modular courses and the majority of the 'new' universities and higher education colleges had further expanded their modularised or unitised programmes to include much of the undergraduate provision. As Watson (1996: 6) commented 'the steady stream of modular innovation has become a torrent'.

However, Jackson and Gregg (1995) assert that many academics considered the primary motivation for modularity to be economic, social and market-driven rather than educational. This point is reinforced by Watson (1996) who commented that the progress of modular developments was such that it had invariably not kept faith with the principles. Thus what clearly emerges is that between the 1970's and the 1990's the range of reasons for both the rapid changes and the development of modularity was complex and was to fulfil many purposes. These motives may broadly be divided into two main

categories, one relating to academic development and the other to economics (Watson, 1989).

Consensus on terminology

The focus of the next section shifts to the complexities of the concept of modularity. Whilst, as explained earlier, attempting to define modularity is to tread the ground of Watson's 'ideologically contested term' it is nevertheless important to find clarity in the concepts because as CNAA (1990) points out the interpretation of modularity influences the nature of the decisions to be taken.

References to the lack of a commonly accepted understanding of what might be meant by a modular approach can be traced through several years. For example, Farley (1986) expressed concern that there was no conceptual consensus, and Spours (1989a) identified one problem, from the perspective of developments in 14-19 education, as being that the major accreditation bodies had different perceptions of the role of modules. CNAA (1990: 10), in suggesting that different conceptions of modularity might reflect 'different degrees of modularity, different ways of going modular, different balancing of the pros and cons' also helps to highlight the complexity of the issues. This is substantiated by, for example, the HEQC (1995b) who point out that, in contrast to the US, British higher education institutions have each adopted different approaches to modularity. Indeed in some cases different parts of the same institution may have different approaches.

Furthermore, Jackson and Gregg (1995) add that the absence of a standardised approach to modularisation can be identified as the one constant in UK institutions where developments differ depending on the context, objectives, structure, and the available resources. Whilst on one hand the differences may be a creative strength they also contribute to the lack of conceptual consensus in that there is little or no common language or understanding of the meaning of modularity in Britain, thus presenting a very effective barrier to communication.

Concepts

Several writers offer valuable insight into the different approaches to modularisation. Some, for example Spours (1989a: 5) distinguish between 'modular developments' which he describes as 'varied and often fragmented attempts to develop a modular curriculum within qualifications or institutions', and 'modularisation'. According to Spours the latter refers to 'the development of modular systems spanning qualifications and used as a means to alter their progression relationship to one another'. From within the context of the school sector systems spanning qualifications may be large-scale. As Moon (1988), comments modular initiatives in this sector may cover the whole spectrum of curriculum reform from small, school-based schemes to major local authority changes involving hundreds of teachers and lecturers. For the most part the higher education sector takes a more insular view and initiatives are described from the perspective of a single institution.

Further detail about modularisation is given by, for example, Squires (1986) who asserts that modularity is above all a matter of structure. He explains that this embraces the structure of the curriculum and of its assessment, the aims and content of what is taught, the teaching-learning process, the counselling and tutoring of students, and the social interaction between and among staff and students. He adds that definitions tend to refer to not one but several defining characteristics. These include: a greater degree of student choice than in conventional course patterns; standardisation of the size and sometimes the weighting of modules; the separate assessment of each unit or module; and the aggregation of such units to lead to a qualification such as a degree.

What emerges from the above description is that there are structural considerations, and educational considerations, such as choice. These need to be juxtapositioned with the notion that modularity could be interpreted as simply meaning breaking up the curriculum into discrete and relatively short learning experiences which may or may not have separate learning objectives and assessment requirements (Watson, 1989; Young, 1995). In other words

the conception of modularisation could be a very mechanistic approach to structural changes without being founded in educational principles.

This is an exceptionally important point because protagonists of the 'simply divide up existing courses' viewpoint are proposing a reductionist, or technical approach. It has been strongly argued that only through a firm commitment to principles can modularisation be an incentive for more fundamental changes. For example, CNAA (1990) offers further insight in reporting on some concerns raised at the 1990 *'Going Modular'* conference. Conference participants had discussed whether 'modular' referred to the *structure* of courses or to the *philosophy* (their emphases) of course provision involving, for example, student choice and flexibility. They noted that a course could be modular in structure without fulfilling the wider criteria that needed to be met for full modularity. This could be manifest as modular structures that did not necessarily confer power on students, and a modular course:

> might therefore, as Peter Scott puts it, be a 'skilfully repackaged degree with rather stale and unchanged material' (CNAA, 1990: 9).

Conversely, modularisation could be a massive adjustment in the institution's approach to students, teaching and purposes as well as 'packaging' of course material (CNAA, 1990). This more radical approach is elucidated by, for example, Duke (1992: 21) who explains that modularisation:

> quickly takes one into quite fundamental questions of curriculum design - and beyond these to clarifying and perhaps modifying assumptions about the nature, intentions and outcomes of a university education...about who comes to university with what learning needs and resources; and what that means for teaching-learning processes...raises fundamental questions and favours a new paradigm.

Thus, there are different ways in which individual academic staff, a department, faculty or the institution as a whole may conceptualise modularisation. The conception will have major implications for the approach that is adopted and to what extent that approach realises the educational philosophy or principles of modularisation as it is most holistically defined. However, a further layer of complexity is added when the intrinsic and extrinsic factors that characterised Phase 1 and Phase 2 developments (Waterhouse, 1986 cited in Watson, 1989; Squires, 1986) outlined in Section

2.3.1 are considered. It becomes apparent that the relationship between the *purpose* for adopting a modular approach and the corresponding *conception* of modularisation could be of paramount importance. It is possible that tremendous tensions could be created through a misalignment of these two factors. This is discussed in more detail in the section below and in Chapter 6.

Going modular

In common with the different conceptions of modularity (modularisation and modular developments) there are different interpretations of what is involved in 'going modular'. Shackleton (1986) argues that with modularisation there are three levels: the modular system; modular programmes; and the modules themselves, and that it is vital to distinguish between these levels in terms of their characteristics. In the following section each of these three levels will be dealt with in turn, starting with the development of the modular system.

For Squires modularity is best understood in terms of a spectrum of course structures which he clearly explains:

> 'At one end...is the course which is entirely prescribed: the student has no choice at all of what to study, except perhaps in the subject of a dissertation or project, and although each part of the total course may be examined or assessed separately, there is no question of interim or intermediate qualifications. Such courses are relatively rare...This degree of prescription may reflect either academic and professional judgements...or staff shortages which tend to reduce the number of options available. Much more common is the degree course in which the bulk of the work is prescribed, but in which there are some optional elements...Further still along the spectrum is the degree course in which the core is confined to the first year, and the sequencing after that is relatively open...it is at this point along the spectrum that references to 'units' and 'modules' begin to appear. At the extreme end of the spectrum is the course which has only one or two prescribed elements, the rest being a matter of student choice, and staff guidance' (Squires, 1986:8).

Furthermore, Squires describes the degree types along the spectrum. They may be either single track, characterised by a linear course structure that does not allows options, or disaggregated with small or large requisite 'cores' allowing between a third and 60-80% of choice, or cumulative where the required core falls below a quarter. The latter type of degree is the key defining feature of a modular course (Squires cited in CNAA, 1990).

There may be a variety of approaches to making the transition from traditional course provision to a given point in the spectrum described by Squires above. For example, according to Watson (1989) there are broadly two approaches, one being the 'creation' model; and the other the 'conversion' model. He explains that the creation model 'implies the *ab initio* design of a new course, including...the dissolution or suspension of an old course'. Such a course can remain relatively isolated within an institution that also offers more traditional courses. In the conversion model there is either 'an internal (course-led) or external (faculty- or institution-led) decision to recast and develop current courses in a modular form'.

Further light can be cast on the different magnitudes of modular structures which may be developed. This could range from the 'minimalist' position of modularising a single course to the 'maximalist' position of modularising all courses within an institution (Watson, cited in CNAA, 1990). CNAA (1989) and Walker (1994), for example, help to clarify these positions by explaining that modular structures may be applicable to many types of courses and schemes of study. It can, for example, be the organisational basis of the curriculum for single discipline courses without any formal relationship between the individual courses. Alternatively, it can be the basis of a broad multidisciplinary scheme covering a large proportion of the courses offered by the institution with a wide choice of combinations of subjects and pathways. Such schemes have been designed in a variety of ways which all involve some constraints on potential flexibility. Some schemes fall somewhere between these two extremes, for example, one faculty in an institution may offer modular based courses, or a scheme may be interdisciplinary, involving two, three or more subject areas. One important factor with the latter schemes is that consideration would need to be given to developing a common set of regulations. To attempt to further clarify the different approaches the HEQC (1994a & b) distinguishes between modular structures, modular schemes and CATS Units or Schemes. These are discussed in more detail in Chapter 5.

Both Raffe (1994) and Young (1995), commenting from the perspective of the post-16 sector, offer further valuable insights into approaches to going modular. Raffe focuses on two possible modular strategies that could overcome the divisions between academic and vocational qualifications. Young expands on this and distinguishes three forms of modularisation. Modules that do not change the relationship between qualifications (what Spours terms 'modular developments') are for Raffe an 'integrative strategy' and for Young 'internal modularisation'. Modules that can be part of more than one qualification are for Raffe an 'aggregative strategy' and for Young 'external modularisation'. The third form, according to Young is 'connective modularisation' which is characterised by a 'whole approach to the curriculum. According to Young this has an effect on the role of guidance, the preparation of materials and the availability of learner support that the students would need if they were to benefit from the opportunities of choice within modular systems [10].

Some writers use a form of classification to distinguish between types of modular courses, for example Walker (1994) uses a Mark I-III typology to categorised modular systems by their patterns of access, delivery and credit:

> A Mark I system is characterised by students engaged in taught modules on largely prescribed pathways within a common set of assessment regulations. Mark II introduces the accreditation of prior learning and credit accumulation and transfer, encourages part-time learning opportunities, experiments with a wider range of learning methods (self-supported study, learning contracts, peer-tutoring and so on) and provides inter- and extra-disciplinary modules. Mark III, which no British university has yet perfected, offers a sophisticated credit arrangement for prior learning and experience...designs joint programmes with other educational institutions and with industry and commerce, experiments with a wide range of assessment and recording methods (work-based profiles, portfolios - and so on) and assesses on demand in relation to contracted learning outcomes (Walker, 1994: 26).

Roper (1994: 147) offers some interesting critical reflections on this typology that magnify further the critical nature of the issue of the purpose and conception of modularisation. He asserts that in Mark I:

> The delivery structures and the all-important rules matter a very great deal, almost to the exclusion of the overall aims and philosophy...the appearance, and not necessarily

[10] Young cites the following examples: internal modularisation - GCSE; external modularisation - 'the Y-models' where BTEC National qualifications were developed with 'A' levels; and connective modularisation - the AEB/Wessex collaborative scheme.

> the reality, of 'choice' and 'flexibility' matters more than 'coherence' and 'progression'...apparent 'choice' and 'flexibility' are confused with real student 'entitlement' and empowerment.

Furthermore he states that progression to Mark II modularity:

> Dictates a reconsideration of the underlying rationale for higher education. It requires universities to be outward looking, to be centred upon the wider development of students and their experience as learners, employees and citizens and to be at least as serious in this pursuit as they have historically been in the disciplinary and research domains (Roper, 1994: 148).

What clearly emerges is that there is a spectrum of types, scope and complexity of the modular arrangements or structures that have developed. This suggests that there is possibly a corresponding spectrum of principles, values, and beliefs underpinning modularity. The motivation for making decisions about 'going modular' is, Watson says, a crucial consideration. He argues that the way in which an institution has interpreted modularity will have led either to the development of a genuinely modular curriculum framework or to what Watson calls 'phantom modularity' manifested as schemes which imply promises which they then cannot deliver (Watson, 1996: 6). Chapter 6 explores these arguments in more detail.

Modular Programmes

The second of the three levels that Shackleton (1986) identified as being of importance to define is that of modular programmes. In common with the range of conceptions of modularisation, modularity, modular approaches and schemes are different ideas about the constituent elements such as programmes and courses. These differences in conception can be explored from several angles. For example, in Section 2.2.1 it was explained that there are differences between the use of the term 'course' between the US 'course system' and the British word 'course' which is more akin to the American word 'programme'. Rothblatt (1991: 130) explains that the British use of the word is monotheistic, but the American is polytheistic. According to Rothblatt 'monotheism is characterised by rigour, jealousy and exclusion, while polytheism is relaxed, tolerant, careless and inclusive'. The opinion that Rothblatt offers of a monotheistic approach in Britain can be linked with the notion of power and ownership which is discussed below.

With the surge in modularity came a blurring of the distinction between a course and a programme, and in the various definitions offered the potential for a shift towards student empowerment can be detected. For example, CNAA (1989: 3) explains that a course comprises the range of units of study available to students leading to a particular award, and furthermore describes a 'programme of studies' as 'an individual student's pathway through the course'. Watson also gives a clear pointer to ownership when he describes a 'programme' as consisting of the modules taken by a student over one or more terms and a 'course' as a set of programmes leading to a particular qualification. Watson further explains:

> Unlike the conventional model of the degree course...the obligation to design and integrate the scheme moves from the staff to the student...The modular scheme is fundamentally an organisational device which...allows for an immense variety of individual pathways to their achievement. There are potentially as many 'Modular Courses' as there are students registered on the scheme' (Watson, 1989: 5).

In the opinion of Shackleton (1986), together with the constituent modules, a modular programme also includes arrangements for, for example: information guidance and support; assessment, review and adjustment; certification and creditworthiness; and arrangements for access and progression'.

So what emerges is that in shifting from a traditional course to modular programmes there is a corresponding ideological shift from ownership by academics to ownership by the student. This is emphasised strongly by, for example, the HEQC who state that:

> In the United Kingdom, the *course* almost always refers to a structured and pre-designed learning experience, often single discipline-centred, offered by academics for students to follow. It may contain within it more or less options and choices, but its key feature is that it is designed by professional and academic judgement alone, leading to a designated final qualification...A programme generally refers to the process from the perspective of a student. It is usually constructed by the student from the modules or units available, and may be formed initially with a specific qualification in mind. To this extent many 'programmes' are co-terminous with a 'course'. However, in modular and credit-based schemes, the potential exists for much greater individuality of programme design, initiated by students with guidance support, and authenticated subsequently by professional academic judgement. In short, *courses* tend to be '(academic) producer-led' and *programmes* tend to be '(student) consumer-led'. For NCVQ courses/programmes they introduced a third dimension: 'employer-led' to the extent that courses are designed to standards established by employer-focused Industry Lead Bodies (HEQC, 1994a: 129).

What also becomes apparent is that modular programmes should strike a balance between student ownership and academic coherence, and between rigid prescription and flexibility. As Walker (1994) asserts a programme must provide individual students with a balanced, progressive and coherent learning experience and that they must be sufficiently flexible to meet the changing needs and aspirations of students. Tuxworth (1986) expresses concern that rigid programme requirements would negate some of the aims of modularisation. Thus, he points out that from an educational viewpoint there are attractions in the notion of modular programmes based on core modules plus options and he introduces the notion of alternative 'pathways' within a given scheme. With such pathways the desire to promote coherence and co-ordination of learning would lead to preferred combinations being indicated with some inclusion of cross-modular work. In this way the student would have choice and flexibility without compromising academic coherence.

The HEQC (1994a) takes the notion of pathways, also called 'routes' or 'tracks', and cross-disciplinary combinations within modular schemes further. Although pathways are not unique to modularity the HEQC explains that these terms describe the pre-designed or student constructed passage across a matrix of modules and learning opportunities from (multiple) entry subjects to (multiple) exit qualifications, for example:

> a student might enrol on a flexible scheme to study English and History, study additional subjects in her first year, change to major in History in the second year, but graduate with Combined Honours. Her *pathway* will have been different from that of a more conventional English/History graduate and may have included electives in Business or Media Studies or Information Technology on the way (HEQC, 1994a: 130).

The insights from the ideas of the various authors given above signal further important features to be considered in deciding the approach to modularisation to be adopted. They are closely interrelated with the 'purpose' and 'conception' issues highlighted previously, for example, the success of the process might be seriously compromised if academic staff were unwilling or unable to accept a shift in the power relations consonant with a change in ownership as it has been described above.

Another important aspect relating to course and programmes is the relationship between the student's programme and the title of his or her final award, as for example, explained by CNAA (1989). In a 'modular structure' a specified number of modules must be completed successfully to qualify for an award. Most modules usually have a designated level and weighting in the overall scheme but some may be 'floating' and available to students at more than one stage of the course. The requirements for an award will specify both the number and level of the modules that have to be taken and passed. Some modules will have prerequisites, which will be defined in terms of other modules within the scheme or in terms of the prior knowledge and skills needed. Within multidisciplinary schemes the student can have considerable choice in determining a pathway through and across the subjects offered, subject to the practical constraints imposed by the design of the scheme. The HEQC (1997) further summarises this by explaining that credit-based undergraduate programmes can lead to one of four types of bachelor award, at honours or ordinary level: specialist (including awards accredited by a professional body); integrated multi-subject; combined multi-subject; generic or CATS (negotiated curriculum).

Modules

The above discussion of the notions of programmes and courses has also introduced the next level down in the modular organisational hierarchy: the concept of 'a module'. This concept is highly significant and thus merits unpacking in more detail, however, in common with modularisation and modular programmes, the concept of modules and units is also ambiguous. Squires (1986: 9) expands on his ideas of modularity as a spectrum of course structures discussed earlier by referring to those degree courses with more open choice. He comments 'the term module tends to apply to course structures towards the latter end of the spectrum and for that reason there is some ambiguity in the concept'. Tuxworth (1986), in agreeing with Squires, puts it as being necessary to accept at the outset that 'modules' do not mean the same thing nor serve the same purpose to everyone engaged in, or talking about, the process of modularisation'.

Notwithstanding the potential ambiguities the concept of modules and units, in common with other concepts embedded in modularity, has evolved with both experience and time. The literature contains many descriptions of, or comments about, the concept of 'a module'[11], from which there is an apparent evolution in the complexity of the definition. In general each definition has a shared sense of a module being a 'part' or a 'package' of either learning, or a course or programme. For example, Mackintosh (1988: 154) explains that a module is 'a unit of learning'. Tuxworth (1986: 221) describes a module as a 'part or a unit of an educational programme', the FEU (1992: 4) state that a unit is 'a coherent and explicit set of outcomes' and for Burke and Carey (1994: 44) a module is a 'short unit of learning'. From these definitions it appears that there are nuances emerging between the meaning of 'a module' and of 'a unit'.

Some writers also link the definition to assessment. A good example is given by Raffe (1994: 141) who says that a module is 'a relatively short unit of the curriculum which is self-contained in the sense that it can be delivered and assessed separately, and which may be combined in different ways with other modules'. A few authors link it to 'measurables' such as time, for example, Moon (1988: 8) describes a module as a 'unit of teaching activity and learning expressed as an approximate number of hours of study'. Furthermore, Tuxworth (1986: 221) also includes the notion of modules being aggregated towards the award of a qualification.

A further feature to emerge from the definitions is that of the possible relationship between one kind of module and another, for example, pre- and co-requisites. The challenge of elucidating such possible relationships has resulted in the development of typologies to describe the particular purpose of a module. For example, from a Further Education perspective Tuxworth

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[11] Shackleton 1986: 214; Tuxworth 1986: 221-3; Theodossin 1986:9; Van Eijl 1986: 451; Jonathan 1987: 86; Warwick 1988: 3; Moon 1988: 8; Krüger 1988: 112; Mackintosh 1988: 154; Weller and Williams 1988: 74; Spours 1989a: 11-14 & 1989b: 12; Watson 1989: xvii; Davies 1991: 421; FEU 1992:4; Davidson 1992: 170; Burke & Carey 1994:44; Walker 1994: 35; Raffe 1994:141; HEQC 1994a: 127; Strydom 1995: 21

(1986) identifies a range of nine types. These include modules for general education in both core subjects or areas and optional or additional areas, for developing technical and vocational competences common to a number of occupations, and for meeting the specific needs of individual employing organisations. Watson (1989) presents a glossary that describes eleven types of modules: single; double; basic; advanced; further; acceptable; compulsory; recommended; prerequisite; unattached; and synoptic modules.

According to Squires (1986: 9) two other aspects of the definition of a module are important. First it is often assumed in Britain that modules 'are standard units i.e. of the same 'size' in terms of length, hours of teaching or [student] work, and secondly it will already be clear that modularity and credit accumulation and transfer are intimately related'. The following description by CNAA (1989) best illustrates all the elements of the definition of a module outlined above, together with the important issue of standardisation:

> a self-contained block or unit of study which has a standard size or some method of agreeing a standard value. Each module usually has specified prerequisites and distinct aims and objectives and is assessed and examined separately, normally during it and immediately following its completion. In a modular structure a specified number of modules must be completed successfully to qualify for an award. Modules usually have a designated level and weighting in the overall scheme, although some may be 'floating' (CNAA, 1989:3).

The standardisation of size is a vexing issue because, for example, decisions have to be made as to the basis for agreeing a standard value for units or modules. Squires (1986) and CNAA (1989) describe one approach as being to define them in terms of time-tabled or 'contact' hours of teaching. Another approach is in terms of total study hours, including class contact time. As CNAA point out this can be approached either highly mechanically by dividing up traditional class contact time, or highly analytically by identifying learning outcomes. Moreover, there are inherent difficulties in both approaches (Squires, 1986; Tuxworth, 1986; CNAA, 1989). The problem with contact hours is that the pattern of teaching varies from subject to subject, across subjects and from year to year, thus creating difficulties in specifying standard units in terms of teaching hours. The dilemma with the second approach is what to take as the base line: an academic year, a term or a semester. The number of teaching weeks in the same term, semester or year may vary from

institution to institution and from course to course within an institution. These variations thus make it difficult to specify units in either terms' or weeks' work and it may be this general lack of fit with Britain academic year that has impeded the wider development of modular schemes (Squires, 1986)[12].

The difficulty associated with using 'real' time, such as contact time, as the basis for standardisation was, in part solved by the theoretical construct of 'notional time'. In its simplest sense notional time is all the time an 'average' student spends in learning including for example: contact time; self-directed study time; projects and assignments; and fieldwork. This concept is discussed in more detail in Chapter 5 (Section 5.2.4). However, even with the option of adopting notional hours as means of standardising modules the paradox of the time-base still remains.

The introduction of standardisation into a modular scheme requires much thought, as Waterhouse has commented:

> A restricted modular system in which all the modules must be the same size and last for the same length is a straightjacket of the sort that has given modularity a bad name (Waterhouse, cited in HEQC, 1994a)

At the heart of the standardisation issue is 'administrative preferences' versus 'academic flexibility'. It is justifiably claimed by academics that the patterns of subject disciplines do not necessarily lend themselves to standardisation, so what is possible for Biology may not be appropriate for History or Fine Art (HEQC, 1994a). Such difficulties have led to the argument for a tariff system which standardises modular-credit (Squires, 1986). The application of credit to modular structures has the effect of 'bestowing a currency which tolerates differences of size and shape whilst retaining a measure of equivalence' (HEQC, 1994a).

A comprehensive summary of the key features of 'a module' are presented in the following extract:

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[12] Squires is writing from the perspective of 1986. The structure of the academic year was the focus of an inquiry culminating in the 1993 'Flowers Report'. It still remained a contentious issue when this study was undertaken (see Chapter 7).

> There has been a longstanding discussion about the relationship between credits, modules and units. We detect signs that this may now be resolving itself as the use of these terms collapses into a shared description of *modular* and *credit-based arrangements*...*Modules and units* have certain basic characteristics. As Theodossin (1986) and many others have observed, these are: *size and shape* - their 'width' (in continuous teaching time); their 'length' (measured in terms, semesters or year); and their 'weight' in the programme (often as 'core' or 'elective'); *arrangement* (whether taught concurrently or consecutively); and *assessment* (usually terminal, at module completion). Beyond these characteristics, modules may also exhibit other features. They may be *pre-requisite* or *co-requisite* requirements for other modules; they will be assigned a level in a framework of progression; they may have specific entry requirements; they may be shared with other programmes and therefore have mixed ability cohorts; finally, they may be not be available to students at any given time if room scheduling or staff availability constrains this (HEQC, 1994a: 126-7).

This summary also brings attention back to the use of credit as a means of establishing equivalence between modules.

Credit

To investigate the concepts, principles and applications of 'credit' and 'credit accumulation and transfer' would in itself be worthy of an intense and wide-ranging research project. One such study was the 'HEQC CAT Development Project' which, from being initiated in 1992, culminated in the extensive report *'Choosing to change: extending access, choice and mobility in higher education'* (HEQC 1994a; 1994b; 1995a). This report is also known as the 'Robertson Report' after one of the principal authors. Another definitive source is the book *'Credit-Based Systems as Vehicles for Change in Universities and Colleges'* by Allen and Layer (1995).

To attempt an in-depth analysis of 'credit' is beyond scope of this study. However, it is also recognised that there is an inherent danger in 'skating across the surface' to present a brief synopsis of the concept of credit. Although some of the key features of credit will be presented in the following section it is only possible to signpost some of the more technical details relating to credit systems. The more philosophical issues can only be addressed in a more detailed investigation and analysis such as that conducted by Allen *et al.* into the US credit system. As Allen and Layer, reflecting on the experience point out, the study gave participants:

> The opportunity to look beyond the structures towards the issues that the introduction of those structures raised...we considered what *else* was important for credit-based systems to make a difference: style of introduction, management values, professional

leadership, sophisticated understanding of learning processes, etc' (Allen and Layer, 1995: 8).

Allen and Layer (1995) distinguish between the principles underlying both credit and modularity. Modularity in its most general sense, they state, 'makes an assumption that *formal* learning can be broken into self-contained blocks (units or modules)' (Allen and Layer, 1995: 26). The crucial point is that the modules are self-contained in terms of outcomes and assessment. Significantly they add that the general principle of modularity 'does not make any assumptions about size of modules or the need for standardisation, though it is often assumed to'. Credit, together with accumulation and transfer (CAT) on the other hand, works at the broadest level by suggesting that learning can take place anywhere. It assumes that learning can be measured, be given a credit value, that credits for learning can be moved from one place to another, and that a widely accepted tariff acts as a currency to ensure maximum portability of credits. Importantly, credit makes no assumptions that learning must take place in an educational institution, that it needs to be formal, or about what 'size' learning should be. Credit simply means learning can be measured, accumulated and transferred (Allen and Layer, 1995).

Both simultaneous to and interrelated with, the growing developments in modularity, many UK higher education institutions were developing their credit systems. However, in the absence of a national credit framework, according to the HEQC (1994a), 'there are different systems operating within Britain'. At the time of the *'Choosing to Change'* study, credit systems had developed to the extent that 'first' and 'second generation' developments could be recognised. First generation systems address the needs of relatively small, often marginal groups of students who might make 'idiosyncratic' demands on institutional arrangements. Second generation systems address the needs of all students, conflating credit and modularity in ways which seek to modify structures and relationships in higher education to produce flexibility and choice for the benefit of all institutional members (HEQC, 1994a).

Two of the credit schemes to emerge on a national basis were those of CNAA and the Further Education Unit (FEU)[13]. Whilst both were concerned with credit and its accumulation and transfer there were quite radical differences between the two. The CNAA CAT scheme was launched as a five-year pilot in the polytechnic sector in the London area in 1986 (Davidson, 1992; HEQC, 1994a). It was a two-fold development: an advisory service offering guidance on the credit worthiness of a student's past achievement; and a brokerage service negotiating a programme of studies between institutions. This transbinary scheme was one of the elements of the work of CNAA which continued after the organisation was closed (Barnett, 1992). The CNAA credit tariff scheme, to which most modular schemes could be related, facilitated credit transfer within a single institution, locally, regionally or nationally. The cornerstone of this scheme was that a full-time student's workload was defined as 120 credits per year, and different years of the standard three-year degree are designated levels 1, 2 and 3. A degree is awarded when a minimum of 360 credits at the appropriate level have been obtained (Anthony, 1992). This scheme differs from modular and unit schemes because it is not a structural arrangement and, whilst promoting many of the ideas found in modular and unit schemes, it moves a step further by accrediting learning wherever it is gained and whenever it is, or was, acquired (Davidson, 1992). The success of the scheme is confirmed by, among others, Duke (1992) who states that:

> In particular the CNAA Credit and Accumulation Transfer Scheme (CATS) has become a byword and the main vehicle for CAT development. Here we are not looking just at access into, within and between FHE institutions, but also at recognition, transfer and trading with industry, via recognition for academic credit of workplace learning (Duke, 1992: 20).

It becomes evident that the CNAA scheme promoted the development of credit systems in higher education, amongst institutions, employers and professional bodies, and was a key initiative in influencing the climate of opinion in favour of the usefulness of credit-based learning. However the scheme had limitations in that it was degree-centric and mechanistic (HEQC, 1994a).

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[13] Other credit schemes included the National Open College Network and the National Council for Vocational Qualifications.

In contrast the FEU were working on the development of a common CAT system for the post-16 sector. The goal was to develop a CAT framework which unified both academic and vocational programmes, was based on 'units' expressed in outcomes, enabled credit to be accumulated and transferred and facilitated the development of a common core of knowledge and skills in all learning programmes especially those for 16-19 year olds. The credit is determined by agreeing the notional amount of time (including teacher contact and independent study) required, on average, for a learner to achieve the defined outcomes of a Unit at a specified level. It is acknowledged that fast learners may achieve the unit more quickly and others may take longer. In the FEU scheme a unit = 30 hours of learning = 1 credit. The strength of this scheme lay in the union of credits, modules, and outcomes (HEQC, 1994a).

The powerful potential for the development of credit schemes to foster change in higher education is explained in the following excerpt from Duke (1992). His reasoning for the importance of CAT echo his opinion of modularisation cited earlier in Section 2.3.3. According to Duke:

> The very idea of CAT implies a paradigm shift in educational provision and curriculum design: from the institution to the individual student. Instead of 'the degree course', which the institution determines and which the student follows from the beginning of day one to the end of year three, there is the notion of a range of educational opportunity from which each student chooses. CAT is an export from the more individualistic and market-driven North American society. It challenges the British archetype of an institutionally planned three-year programme through which an annual cohort of students moves together. The traditional model is criticized as inflexible or 'lockstep'; the CAT approach is disparaged as a smörgåsbord, or pick-'n'-mix (Duke, 1992:52).

Furthermore, Duke draws attention to potent challenges in the development of CAT. He says:

> A dilemma...is whether to credit-rate by conventional academic criteria, which means courses taught and assessed in established ways - the time-serving approach, in the jargon. [The] promotion of learning outcomes and the accreditation of prior experiential learning (APEL), fuelled in part by the development of NVQ's in vocational education and training, offer a much more fundamental challenge than do modularisation and CAT to the assumptions and practices of HE, FHE and indeed the whole education enterprise (Duke, 1992: 53).

2.4 Student and staff attitudes

Several research studies have focussed on attempting to tease out the attitudes of both students and staff to their experiences of modularisation. The findings of such studies help to add a layer of richness about the benefits and drawbacks of modularisation and allow them to be viewed from a different perspective to that presented in Chapter 1. Some of the main findings from a small selection of writers are presented below. A greater emphasis has been placed on drawing from the literature about student perceptions, because, in the fieldwork component of this study it was not possible to interview students to elicit their feelings first-hand. On the other hand the perceptions of academic staff form a major focus of this study as discussed in more detail in Chapters 5, 6 and 7, and therefore the discussion here is brief.

Student attitudes

Harrop and Woodcock (1992) investigated the attitudes of students to the adult and continuing education section of a modular course at Liverpool University. The Liverpool course was set up in 1988 and offers the mostly part-time students, from a wide variety of professional backgrounds, 'free choice of a 'pick and mix' variety, that is there are no compulsory modules' (Harrop and Woodcock, 1992: 86). Hemmington (1995) also conducted an investigation into student attitudes to a modular hospitality management course at Cheltenham and Gloucester College. Interestingly in his study, the College was in the process of changing from a traditional course to a modular course. Thus, a cohort group was in a position to be able to compare the old course that they had initially been following with the new course. However, because coherence is created through a system of compulsory modules and prerequisites, the structure of the hospitality management course contrasts markedly with that of the professional education course at Liverpool.

Despite the different course structures some common issues emerged from the two studies. Firstly, all six focus groups interviewed by Hemmington identified choice and flexibility as key differences and advantages of the modular programme over the traditional programme. Likewise, for Harrop and

Woodcock choice and flexibility were important issues. However, they note that:

> Almost all the comments related to the delivery of the programme, rather than its content: while students obviously appreciated the flexibility and freedom of the modular course, the responses on the questionnaire indicated significant weaknesses (Harrop and Woodcock, 1992: 89).

On the positive side the student group at Cheltenham and Gloucester College identified a number of advantages. These included the ability to change fields during the programme, the opportunity to opt out of modules during first two weeks, and flexible modes of attendance which enable a student to take the course at their own pace. However, from the criticisms raised by respondents about the number of choices, Hemmington observes that 'clearly when offered choice students expect a wide range of options within fields of study as well as from across the scheme' (Hemmington, 1995: 34).

Symonds (1995), speaking from the perspective of a student, also picks up on the issue of choice and flexibility. She comments on the changes around modularisation and semesterisation at the University of Bradford which 'seemed to presuppose that students would inevitably prefer the greater flexibility and choice of the new system'. Symonds and her peers felt that the new model could:

> Easily exacerbate rootlessness and stress among students as the mid-year swapping between departments and even campuses could become standard and assessment continual. Other worries centred around quality. Short, easily assessable independent study units could reduce our learning to the ingestion and revision of bite-sized chunks of fast food instead of a cumulative and creative experiment with ideas...What appeared to offer choice and flexibility began to seem like a recipe for less variety and a lot of fragmentation (Symonds, 1995: 9).

Hemmington reveals an additional facet of choice and flexibility. He comments that in discussions with students the area that generated the 'most emotive responses' was the issue of bureaucracy and the complexity of the modular scheme. Choice and flexibility mean, he says, 'an inherent degree of untidiness...and an inevitable need for a central administrative system which may be perceived as bureaucratic' (Hemmington, 1995: 34).

Another key issue to emerge in Harrop and Woodcock's study was that a tension was created between meeting the principle of broadening access by offering a part-time mode of attendance and the issue of timing the delivery of the module to a day or evening session. For those students who are not given day or part-day release their choice is immediately restricted to those modules which run in the evening. Therefore, the students asked for more careful timetabling to ensure a greater variety of teaching times with modules available over the academic year and 'core' modules that do not compete with one another on the timetable.

One of the most interesting issues to be raised by the students in both studies was that of the positive and negative social aspects. Hemmington highlights that one difference between the traditional course and the modular course that students identified is that some modules may become very well subscribed. This can lead to problems when the tutors are not skilled in dealing with large groups. Furthermore, the relationship between the student and lecturing staff that is established in traditional courses is not enjoyed to the same extent in modular programmes, particularly when staff are from other fields or discipline areas. Hemmington explains that traditional courses foster close, more cohesive teaching groups because, as one student respondent commented you 'travelled with people right through from the first year'. In contrast students said that with modular programmes 'you don't tend to have a focus group of people to relate [to]'. Indeed one of the respondents in the study thought the modular scheme was 'socially divisive!' (Hemmington, 1995: 34). These views were balanced by responses that suggest that in modular programmes students interact far more and that the diversity of students, in terms of, for example, age and experience is an advantage. In the study by Harrop and Woodcock a similar picture emerges in that a drawback and disappointment expressed by many students in their survey was the 'unexpected loneliness of this method of learning' (Harrop and Woodcock, 1992: 90).

Two further issues were raised in Harrop and Woodcock's study. Firstly, that the availability of modules could be a problem. The staff expected students to

select their modules in good time. In practice many students left their choices to the last minute thus negatively affecting the viability of some modules and sometimes resulting in staff wasting preparation time. For those modules which take on the 'displaced students', those from modules which were not viable enough to run, 'it means teaching some students with a low level of interest' (Harrop and Woodcock, 1992: 90). Watson (1996) also identifies restrictions on module enrolments, usually due to resource allocation and a lack of commitment to respond to an evolving internal student 'market', as a source of irritation to students. Secondly, Harrop and Woodcock note some difficulties related to the amount of time allocated to the subject which students often found to be too short. The Liverpool course modules normally contain 10 hours contact, so 'students are often just beginning to come to grips with the subject when the end is in sight. Assignment dates do not normally allow for feedback to students before they start another module' (Harrop and Woodcock, 1992: 90).

In Hemmingtons study, despite the criticisms, 31 of the 32 student respondents stated a preference for the modular approach. Likewise Harrop and Woodcock conclude that the 'modular course format has many actual and potential strengths' (Harrop and Woodcock, 1992: 92).

Staff attitudes

Studies into perceptions of academic staff also open up valuable insights into the process of modularisation. For example, Gregg (1996) reports that the transition to modularisation or unitisation is very traumatic for academic staff for about three to five years. During this time many challenging aspects relating to the curricular implications of the process have to be addressed by academics including, the organisation of the curricular content, accommodating diverse student populations, setting challenging examination questions and devising experiences which create group identity and cohesion. Gregg explains that when staff feel that modularisation is 'at worst a government or managerial conspiracy to erode academic authority and at best an administrative fad' the transition process is inhibited (Gregg, 1996: 11). Gregg notes further that, in her study, almost universally staff reported that

the decision to modularise had been unilaterally imposed and that they complained that they had neither been adequately consulted nor given adequate opportunity to discuss and debate implementation issues. It is interesting that most of the criticisms against modularity to emerge in the study were 'not direct effects of modularisation *per se*, but rather reflect concomitant changes' such as semesterisation, standardisation of module size or shape, and insufficient resources (Gregg, 1996: 11).

Gregg (1996) also discusses the different curricular impacts of modularisation for different academic fields and identifies concerns which were echoed across all the institutions and disciplines in her study. These concerns include the importance of good academic advice, the need for adequate support and documentation to enable staff to guide students, the difficulties involved in resourcing, assessing and awarding credit for learning that occurs outside modules, the loss of subject identification and group cohesion amongst students, and a tendency for students to fragment or compartmentalise knowledge, evidenced by a decline in integrative thinking.

Trowler also sought to identify the attitudes of academics to modularity and he concentrates on 'the under-reported downside of the credit-based modular curriculum structure', one facet of this being 'administrative fallout' (Trowler, 1996: 17). Many respondents in his study commented on the extra workload created by the increased number of assessment boards and committees, the need to supply, update and correct data held centrally, the time involved liasing with colleagues in other departments, and the time spent with students in trying to explain the system and signing forms, as being problematic.

From the findings of the study Trowler (1996: 18) categorised the responses of academics to credit-based modularisation in four ways, those who are:

Content with their working context	Swim - conformity (most managerial studies put academics here)	Reconstruct (Trowler cites Merton's (1968) innovation and rebellion)
Discontent with their working context	Sink - ritualism, retreatism, defeat (most critical studies put academics in here)	Use coping strategies (Pollard, 1985)
	Accept status quo	**Work around/change policy**

Trowler explains that for the academics in the *'swimming'* category changes in the higher education environment such as expansion and modularity enable them to thrive in various ways, despite the administrative fallout and other problems. By contrast for those academics who are *'sinking'* the pressure of changes in higher education has led to an intensified workload, decline of resources, and increase in student numbers which in turn lead to weariness, disillusionment and even illness (Trowler, 1996).

2.5 Summary of the main points

This chapter has attempted to present the main insights to emerge from a selection of the relevant literature. These insights serve to contextualise and enrich the study. The purpose of the following section is to summarise the main themes that have emerged.

The US

- The higher education system in the US developed and grew rapidly to become the world's first mass-access higher education system (Rothblatt, 1991)
- Whilst it may be a generalisation the following statements, that 'the American side [was] doing a better job on access' and 'the British were probably more successful in protecting quality', are essentially correct (Berdahl and Spitzberg, 1991: 165-6)

- Higher education in the US has a well established and 'generally popular' modular system, as summed up in the following extract:

> It is certainly 'unnatural' for American faculty to consider alternatives to the combination of teaching and examining characteristic of the self-contained module, and students understandably are not aware of other systems. No practical objection to modularity exists. The reasons are clear. Faculty prefer the classroom autonomy provided by modules and electives, and students prefer choice to compulsion (Rothblatt, 1991: 140)

Britain

- In comparison to the US the evolution of higher education in Britain was very slow, with the establishment of the 'old' universities taking several hundred years and the creation of the 'new' taking place in the latter part of the twentieth century.
- The change from a low participation élite to a high participation mass system only began in the late 1980's (Jackson, 1997). Although by the early and mid 90's British higher education was still being described by some as élite (Berdahl and Spitzberg, 1991; Scott, 1995) others were optimistic that transformation was occurring (Allen and Layer, 1995; Jackson 1997)
- Synchronous with the change in participation the higher education curriculum in many institutions was restructured within credit-based, semesterised modular or unit-based formats. These changes essentially occurred between 1992-97 (Jackson, 1997)
- Changes in the school and post-16 sectors of education affected higher education, not least because students were becoming more familiar with a modular curriculum and awards based on modules or units
- 'Modularity' is an 'ideologically contested term' (Watson, 1996). There can be a plurality of conceptions, purposes, uses of terminology, and approaches to modularity
- Modular programmes have the potential to challenge:

> epistomological power, by increasing student choice and offering students a stronger sense of 'ownership' of their courses, through the application of consumerist principles...(Scott, 1995:154)

- Modularity and credit, whilst perhaps having different pedigrees, are interrelated. It is however, important to identify the underlying principles of each concept separately (Allen and Layer, 1995)
- Unlike their counterparts in the US who accept the modular system unquestioningly, it is apparent that British students can detect drawbacks with modularity
- The attitudes of academic staff depend, not unexpectedly, upon the decision-making processes that have been adopted in their particular institution. In a model presented by Trowler (1996) academics may be grouped depending on their response to credit-based modularisation. They may be 'swimming', 'sinking', 'coping' or 'reconstructing'.

Chapter 3: Research Methodology

3.1 Introduction

The main purpose of Chapter 2 was to contextualise this study by exploring, through the relevant literature, emergent trends, developments, aspects of the current knowledge, and critical questions about credit-based modularisation. The information gathered from the literature is, therefore, one source of data. This chapter focuses on the theoretical aspects of research methodology and methods which influenced the conduct of this study. There are several contexts, approaches, or paradigms which may guide the research enterprise. According to Cohen *et al* (2000:1) 'different research traditions spawn different styles of research'. To enable informed choices to be made the researcher needs to be cognisant with the variety of different traditions and styles. The decisions made in conducting a study can be, and are influenced by the assumptions, values and beliefs about research that the researcher brings to the process. It seems to be important, therefore, that in any research there is a harmonious relationship between the purpose of the research, the paradigm of inquiry that guides the research and the choice of research methods.

There were potentially two broad approaches that could have been adopted in making decisions about the conduct of this study. On the one hand the goal could have been to establish a single model for modularisation. The kind of data gathered to fulfil this purpose might have been large scale and highly quantitative, with a view to making generalisations about modularisation. Such an approach could have been grounded in the values, assumptions and beliefs that resonate with those associated with positivist or empiricist research.

However, one of the underpinning premises that shaped this study was that there might be various different conceptions of modularisation. The goal was not to seek to establish a blueprint for modularisation but to draw on international experiences to inform the process of development in the context of South Africa. It was intended that the data collected would seek to uncover

the attitudes, values, perceptions, interpretations and ideas of the respondents through an exploration of their personal experiences of modularisation. The data would allow multiple perspectives to emerge and would not allow for generalisations but would seek explanation and understanding. This approach to research is commensurate with the assumptions and beliefs underpinning the hermeneutic, interpretive or naturalistic paradigm of inquiry. The methodological emphasis in this paradigm is idiographic (as oppose to nomothetic) and allows for a qualitative approach to be adopted (Cohen *et al*, 2000).

Thus, the purpose of this chapter is to discuss some of the pertinent differences between the paradigms for inquiry. Against this backdrop the decisions taken in the context of the conduct of this study are discussed in Chapter 4. In the first section of this chapter the plurality of research paradigms and their characteristics are briefly compared. Some of the features of both quantitative and qualitative methods are outlined. In the second section the choice of methods for data collection is explained. This is followed by a brief discussion of reliability, validity, triangulation, and ethics in quantitative and qualitative studies. The chapter closes with a short summary of the main points. A discussion of how these theories informed the design and practical conduct of this study as a small-scale survey to collect qualitative data is given in Chapter 4.

3.2 Perspectives on research paradigms and methodologies

In response to the question 'what are we doing when we do research?' Usher (1996: 10) suggests that an answer might be 'that we are systematically attempting to address and investigate pre-defined issues or problems'. Whilst this illuminates the purpose of research there is a second critically important set of questions that relate to what Cohen *et al* (2000), among others, have called 'the nature of inquiry'. These questions address considerations such as the underlying guiding principles on which the research is founded and the framework or terms of reference within which the research is conducted. At the heart of these principles and frameworks are differing 'stances' to, and

'relationships' between ontology, epistemology, and methodology[1] (Guba and Lincoln, 1989; Usher, 1996; and Scott, 1996).

On the basis of different conceptions and approaches to ontology, epistemology, and methodology different paradigms which guide disciplined inquiry emerge. According to Khun (1970: 75 cited in Usher, 1996) a paradigm is the 'entire constellation of beliefs, values, techniques shared by members of a given scientific community'. Khun's concept of a paradigm arose from his critique of one particular epistemology termed 'positivist', 'scientific' or 'empiricist'[2]. In this paradigm the basis of the beliefs are that reality exists, is concrete and absolute, is driven by immutable natural laws, and can be predicted and controlled. Knowledge ('truth') is context free and the inquirer is distanced from the object of inquiry. This has traditionally been recognised as the domain of 'science', and in particular it is typified by the field of Physics as a 'hard' (absolute) science. In contrast the naturalistic or hermeneutic paradigm is grounded in a relativist ontology characterised by multiple, socially constructed realities where knowledge is not context-free and 'truth' is tentative rather than absolute.

Whilst a positivist/empiricist approach might be adopted for research in the social sciences, and in particular, in the field of education, the underlying assumptions about the nature of the world (reality) are problematic (Usher, 1996). One characteristic of a positivist approach could be that the 'end-product', the analysis, would be expressed in terms of laws or law-like generalisations (Cohen *et al*, 2000). There has been a growing critique of the assumptions, in particular those relating to knowledge, underpinning the traditional positivist approach. In contrast, in social research 'knowledge is concerned not with generalisation, prediction and control but with interpretation, meaning and illumination' (Usher, 1996: 18). Thus, alternative approaches to research in the social sciences have emerged which are

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[1] Where: *ontology* is the nature of reality; *epistemology* is about different kinds of knowledge claims; and *methodology* is the way the inquirer finds knowledge (Guba and Lincoln, 1989; Guba 1990; and Usher, 1996)

[2] The positivist viewpoint may also be termed the 'normative paradigm' and the anti-positivist viewpoint the 'interpretive paradigm' (Douglas, 1973 cited in Cohen *et al* 2000)

grounded in conceptions of knowledge and reality that differ markedly from those which underpin positivism. These approaches have been described in a variety of different ways, including post-positivist, critical theorist and constructivist (Guba and Lincoln, 1989; Guba, 1990), and hermeneutic (interpretive), critical theory, and postmodern (Usher, 1996).

One of the main implications of the different paradigms discussed above is the influence on the methodology selected for research. In a positivist paradigm the methodology is grounded in the use of manipulative methods, hypotheses, empirical tests, and controlled conditions in a context stripped of variables. The key process in inquiry is *explaining* to make the cause or reason clear. In the alternative paradigms the corresponding methodology is both hermeneutic, aimed at joint construction, and dialectic with the juxtaposition of conflicting ideas. Thus, in seeking to uncover multiple points of view, the key process is *understanding*, and truth is not absolute (Guba and Lincoln, 1989).

Another important distinction has been made between quantitative and qualitative research, methods and data (Burgess, 1985; Best and Kahn, 1986; Tesch, 1990; Scott, 1996). However, as Tesch (1990: 3) points out 'qualitative research means different things to different people'. The assumption that 'quantitative' and 'qualitative' strategies and methods are two sides of a divide has been challenged, mainly on the basis that the contrasts between the two are drawn too sharply. Thus, it is argued that whilst differences do exist the two methodologies do not belong within separate research paradigms and they can sensibly be used within the same investigation (Scott, 1986).

Structured interviews, postal questionnaires and standardised performance tests might be considered to be quantitative methods. Unstructured interviews and participant observation could be termed qualitative methods. However, a questionnaire may contain questions which are open and allow the respondent to express perspectives and views as a social actor. An interview can be used for both the collection of factual data and to elicit the

opinion and views of respondents. Thus, neither the interview nor the questionnaire can be located firmly in either the quantitative or the qualitative 'camp' (Scott, 1996: 61). The same data collection method might be embraced by the different research paradigms, but the method would be used to collect data in different ways, and the type of data gathered would differ. Furthermore, Scott argues that it is the fundamental relationship between the data, what they refer to, and the underpinning assumptions and values of the chosen research paradigm that is important.

The intention of the above discussion is to attempt to contextualise this study both in terms of the guiding research paradigm and the qualitative methods selected. The purpose of this study was not to seek a blueprint or to expose *'the'* model for modularisation, in other words not to find an absolute truth but to reveal some of the complexities of alternative models for modularisation. Therefore, the choice of the research methodologies was influenced more by the assumptions and beliefs of the hermeneutic (interpretive or constructivist) than the positivist paradigm.

3.3 Research Methods

Sampling

In the design phase of any research an important decision has to be made about the sampling strategy to be adopted (Cohen *et al*, 2000). Since it is 'impracticable, if not impossible' to study a whole population, a sample[3] has to be selected (Best and Kahn, 1986: 11). The total population, from which the sample will be drawn, is referred to as the 'sampling frame'. According to Cohen *et al* there are judgements that have to be made about four key factors in sampling: sample size; representativeness; access; and the sampling strategy. These considerations are discussed briefly below.

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[3] A population is: any group of individuals that have one or more characteristics in common that are of interest to the researcher. The population may be all the individuals of a particular type, or a more restricted part of that group. A sample is a small proportion of a population selected for observation and analysis. From the sample certain inferences about the characteristics of the population can be made (Best and Kahn, 1986: 12).

Firstly, the style or scope of the research may have a bearing on the sample size. Factors such as time, money, the number of researchers, and resources may limit the number of cases that may be included in the study. Secondly, the extent to which the sample represents the whole population needs consideration. Thus, the researcher needs to be very clear what is being represented and to set the parameter characteristics of the wider population (the sampling frame) clearly and correctly. Thirdly, in some types of research where perhaps the information to be gathered may be of a sensitive nature, access is an important factor, for example, the HIV status of respondents, or protected information such as a new discovery or invention. The fourth consideration is the method of sampling to be used (Cohen *et al*, 2000). The various types of sampling method are discussed in more detail below.

There are two main methods of sampling: probability or random and non-probability or purposive. The difference between the two is described by, among others, Cohen *et al*:

> In a probability sample the chances of members of the wider population being selected for the sample are known, whereas in a non-probability sample the chances of members of the wider population being selected for the sample are unknown (Cohen *et al*, 2000: 99).

Probability sampling techniques include simple random, systematic, stratified, cluster, stage, and multi-phase sampling. Non-probability sampling also includes several types known as convenience (accidental or opportunity), quota, dimensional, snowball and purposive sampling. Whilst in probability sampling each member of the population has an equal chance of being included in the sample, in non-probability sampling some members of the population will be included and others excluded. In other words each member does not have an equal chance of inclusion because the researcher has purposely selected the section of the population to be included (Cohen *et al*, 2000).

In the purposive type of non-probability sampling the researcher can handpick the cases to be included in the sample on the basis of what is satisfactory to the needs of the study. Whilst the sample may meet the needs of the

researcher it does not represent the wider population and it is 'deliberately and unashamedly selective and biased' (Cohen *et al*, 2000: 104).

Therefore, although non-probability sampling techniques may have inherent disadvantages in terms of representativeness, this may be outweighed by several advantages and thus this is frequently the approach adopted in small scale research. Such advantages include both the relative simplicity and the inexpensiveness in setting up the sample. The approach is also appropriate when the researcher does not intend to generalise their findings beyond the sample. In this study the benefits offered by non-probability sampling, and in particular by purposive sampling, made this an appropriate approach to adopt in choosing the institutions to be visited. The details of the criteria used to choose the sample are discussed in Chapter 4.

Methods for data collection

In Chapter 2 the three chief sources of data for this study were identified as being: the body of literature; the questionnaire and interviews; and documentation from the five universities in the field-study. In the following section the key design issues, merits, and limitations of questionnaires and interviews, as tools, or instruments, for the collection of qualitative data are briefly discussed.

The questionnaire is a widely used instrument when factual information or structured data are required (Best and Khan, 1986: Cohen *et al* 2000). Questionnaires may be administered in a number of ways, for instance, personally or through the mail. The first approach has a number advantages, such as the opportunity for the person administering the questionnaire to develop a rapport with respondents, to explain the purpose of the study and to give clarification where necessary. However, this approach also has the limitation that time and financial resources are required to enable the face-to-face contact. This may be overcome by distributing the questionnaire via the postal service. One disadvantage with this approach is that the response rate is likely to be poor, 'often less than 40 percent', and thus the validity of the data may be compromised (Best and Kahn, 1986: 166).

The design of the questionnaire may take several forms. The questions may take what is termed a restricted, structured or closed form. With this type of question the response might be a simple yes or no, selection of an item from a list of suggested responses, or a brief remark. The advantage of this approach is that the questionnaire is comparatively easy to complete, takes little time, keeps the respondent on the subject, and is fairly easy to tabulate and analyse. In the unrestricted, unstructured or open form of questionnaire the respondent is given the opportunity to respond freely in his or her own words, often with little restriction on the length of the response. Whilst the information sought might be the same as if a closed-form approach had been used, the respondent may give a deeper response, reveal their terms of reference, and possibly give insights into the reasons for their response. However, this type of questionnaire requires greater effort on the part of the respondents which might compromise the quality of the response. The data can be difficult to interpret, tabulate and summarise. To balance the benefits and limitations many questionnaires include both open and closed questions (Best and Kahn, 1986).

With the use of either open or closed questions there are important factors that need to be considered in the design of the questionnaire. Attention must be paid to inter alia: the clarity of the question; the choice of words, phrases or terms; avoiding ambiguous and leading questions; the appearance and layout; and the effectiveness of the directions given to the respondent. It is recommended that the questionnaire is given a 'pilot test' to reveal any defects before the final version is administered (Best and Kahn, 1986). The design and administration of the questionnaire used in this study are discussed in Chapter 4.

Many authors have written in detail about the interview as a research tool[4]. A brief overview of some of the pertinent features of the interview is presented in the following section.

The interview is described by Best and Kahn as being 'in a sense an oral questionnaire' (1996: 186) and it has been argued that the use of the interview:

> marks a move away from seeing human subjects as simply manipulable and data as somehow external to individuals, and towards regarding knowledge as generated between humans, often through conversations (Kvale, 1996; 11 cited in Cohen *et al* 2000: 267).

According to Cohen *et al* (2000) the research interview may serve three purposes. Firstly, it may be used as the principal means of gathering information having direct bearing on the research objectives. Secondly, it may be used to test hypotheses or to suggest new ones, or as an explanatory device to help identify variables and relationships. Thirdly, the interview may be used in conjunction with other methods to follow up unexpected results, to validate other methods, or to go deeper into the motivations of respondents and their reasons for their responses.

Research interviews (as distinct from other types of interview) may take several forms. These range from the formal interview where set questions are asked and the answers are recorded on a standardised schedule, through less formal interviews where the interviewer can modify the sequence of questions, to the completely informal interview where the interviewer raises the key issues in conversational style. Various typologies have been proposed to characterise the different types of interview (Cohen *et al*, 2000).

The interview is frequently compared to the questionnaire and in such a comparison given by Cohen *et al* the relative merits of the interview are revealed. These advantages include greater opportunities for asking follow-up questions and for probing for more depth to responses. Some of the

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[4] See, for example, Measor, 1985; Saran, 1985; Best and Kahn, 1986; Judd *et al*, 1991; Scott, 1996; and Cohen *et al*, 2000.

disadvantages are that the interview is prone to subjectivity and bias on the part of the interviewer. For instance, according to Anderson et al, cited in Judd *et al*, 1991: 219) the ' interviewer's expectations or personal characteristics (such as race or sex) can influence responses'. Furthermore, it has been shown that there are greater interviewer effects in personal interviews, than compared with, for example telephone interviews. This is consistent with the idea that 'face-to-face situations create 'the strongest rapport - and hence the strongest tendency for respondents to give invalid, socially desirable answers to suit the interviewer's expectations or desires' (Bradburn and Sudman, 1979: Dillman, 1978, Schuman, Bobo and Steeh, 1985 cited in Judd *et al*, 1991: 219).

For the purposes of this study the interviews conducted were simply categorised as being one of two types. The first type were termed 'structured' where pre-determined questions were posed and the answers were captured on a standardised schedule, with little deviation from the set questions. In the second category, the 'unstructured interviews', the key issues were discussed with the respondent in a 'conversational style'. The relationship with the research questionnaire, the merits, and the limitations of these approaches are discussed in more detail in Chapter 4.

The considerations necessary in the formulation of the interview questions are similar to those already discussed in the section above relating to questionnaire design. With interviews there are two other important stages in the procedure: the conduct of the interview; and the transcription of the data. Unlike the questionnaire the interview is a 'social, interpersonal encounter, not merely a data collection exercise'. Thus there are several aspects that the interviewer needs to address. These include, *inter alia*, the need to establish an appropriate atmosphere where the respondent feels free to talk. The interviewer must be cognisant of the 'interpersonal, interactional, communicative and emotional aspects of the interview, and take responsibility for the dynamics of the situation (Cohen *et al*, 2000: 279). Consideration must also be given to the selection of appropriate ways of recording the

interview. This might be through the use of one or more of the following: audio tapes; videotapes; field-notes; a scribe.

The transcription of the data is a crucial stage in the research process because there is the potential for 'massive data loss, distortion and the reduction of complexity' (Cohen *et al,* 2000: 281). Whilst it has been argued that the interview is a social encounter in the process of data capture, for example with audio-tape, the important contextual factors and the non-verbal aspects of the interview are filtered out. In the process of transcription the data is undergoing a 'change of state or form; transcription is selective transformation...transcripts are *already interpreted* data' (Kvale, 1996: 167 cited in Cohen *et al*, 2000: 281).

3.4 Reliability, validity, triangulation and ethics in qualitative research

According to Best and Kahn (1986) reliability and validity are essential to the effectiveness of any data-gathering procedure, and the terms may be defined as follows:

> *Reliability* is the degree of consistency that the instrument or procedure demonstrates, whatever it is measuring, it does so consistently. *Validity* is that quality of a data-gathering instrument or procedure that enables it to measure what it is supposed to measure. Reliability is a necessary but not sufficient condition for validity. That is, a test must be reliable for it to be valid, but a test can be reliable and still not be valid (Best and Kahn, 1986: 144-5).

However, Cohen *et al* (2000) take the concept of validity beyond the notion that a particular instrument measures what it purports to measure and explain that it has come to take many forms. In qualitative data, for example:

> validity might be addressed through the honesty, depth, richness and scope of the data achieved, the participants approached, the extent of triangulation and the disinterestedness or objectivity of the researcher...It is impossible for research to be 100 per cent valid; that is the optimism of perfection (Cohen *et al*, 2000:105).

Several authors have adopted differing stances in the debate about validity and reliability in qualitative research (Guba and Lincoln, 1989; Scott, 1996). Maxwell (1992, cited in Cohen *et al*, 2000) suggests that 'understanding' is a more suitable term than 'validity' in qualitative studies. Furthermore, to explore the notion of 'understanding', he proposes five kinds of validity in qualitative methods: descriptive; interpretive; theoretical; evaluative; and

generalizability[5]. The issue of validity as it relates to this study, is discussed in more detail in Chapter 4.

One strategy that has been forwarded to address the issue of the validation of qualitative data is 'triangulation'. Triangulation may be defined as 'the use of two or more methods of data collection' (Cohen *et al*, 2000: 112). There are various types of triangulation, for example, time-, space- investigator-, or methodological triangulation. It is important to note, however, that triangulation is not without its critics who point to aspects such as a slide into positivism, and erroneous assumptions that it increases validity and reduces bias (Cohen *et al*, 2000). One of the advantages of a multi-method approach is that it allows richness and complexity to emerge. In this study that was a prime motivator for utilising two approaches to the collection of data directly from the respondents, together with relevant documentary evidence, and further enhanced, where appropriate, by the literature.

In making decisions about the research methodology another substantial issue that requires consideration is that of 'ethics'. As Best and Kahn (1986: 41) explain 'in planning a research project involving human subjects, it is important to consider the ethical guidelines designed to protect your subjects'. The issue of ethics, at the heart of which is the appropriate treatment of persons in a free society, has been dealt with by, for example, enactments of legislative bodies, codes of ethics, and guidelines established by educational institutions (Best and Kahn, 1986). In this study the aspects of 'informed consent', 'privacy', and 'confidentiality' are relevant and will be discussed in more detail in Chapter 4.

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[5] Where: descriptive validity is the factual accuracy of the account. Interpretive validity is the ability of the researcher to catch the meaning, interpretations, terms and intentions that situations and events (data) have for the participants themselves. Theoretical validity is the theoretical constructions that the researcher brings to the research. Generalizability is the view that the theory generated may be useful in understanding other similar situations. Evaluative validity is the application of an evaluative framework, judgmental of that which is being researched, rather than a descriptive, explanatory or interpretive one (Maxwell, 1992 cited in Cohen *et al*, 2000: 107).

3.5 Summary

In this chapter some of the paradigms that guide research were described to attempt to locate this study as having been grounded in values, beliefs and assumptions that characterise hermeneutic (interpretive) research methodology. A qualitative approach was adopted in the study and the chief research instruments used were the interview and the questionnaire. The sample of institutions to be visited was selected from the sampling frame using a purposive non-probability strategy, and the characteristics and benefits of this type of approach were outlined. Whilst validity and reliability may not be considered by some to be of relevance in qualitative studies the importance of consideration of these two aspects has been emphasised here. Furthermore, some of the pertinent issues, which influenced decisions made about methodological triangulation and ethics in this study, have been highlighted. A discussion of their application from the specific perspective of this research study is presented in Chapter 4.

Chapter 4: Conduct of the Study

4.1 Introduction

In Chapter 3 the main theoretical considerations underpinning the research were discussed. In this chapter the focus shifts to an explanation of how these concepts and principles were applied in the conduct of this study. In the first section the overall design of the study is discussed. This is followed by an explanation of the process of selection of the five universities that contributed to the study. After a brief account of the selection of the respondents the processes of data collection and analysis are discussed. The chapter concludes with a consideration of the relevance of ethics, reliability and validity in this study.

4.2 Design of the study

Cohen *et al* (2000: 73) argue that 'research design is governed by the notion of fitness for purpose' and that the 'purposes of the research determine the methodology and design'. In the case of this research one of the purposes was to conduct a small-scale study and from the inception the plan was that a short visit would be made to Britain to conduct the fieldwork at a number of higher education institutions, as explained in Chapter 1. During the planning phase an important decision was made that these institutions would only be selected from the universities and not the Colleges of Higher Education or other institutions offering higher education qualifications. The extent of the visit, and thus the eventual scope of the research, was both influenced and limited by a number of factors. One of the most fundamental was that to enable the fieldwork to be carried out costs would be incurred for airfares, in-country travel, accommodation and subsistence, and sufficient funding to support these activities had to be secured[1]. Also, for a variety of reasons[2] the study could only be conducted during the specific time period of the last three weeks in the month of June. The influence of these parameters on the design of the study is discussed, where relevant, in more detail below.

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[1] Refer to the *Acknowledgements* section.

In the following sections the process of translating the research plan into practical research (operationalisation) is discussed through explaining the selection of the institutions and respondents, the conduct of the fieldwork and the collection and analysis of the data.

4.3 Selection of the institutions for the fieldwork visits

Very early in the design one important set of strategic decisions was centred on how many institutions to visit and which specific institutions to include in the study. As Chapter 3 signalled, in any given study it is not possible to include all the individuals comprising the whole population that have the characteristics which are of interest to the researcher (Best and Khan, 1986). Thus, to enable a manageable study to be undertaken a sample must be selected from the sampling frame (wider population). Chapter 3 also identified four key factors: sample size; representativeness; access; and sampling strategy as being important to consider in sampling (Cohen *et al*, 2000). It is interesting that it became increasingly apparent, through reflection on the experience during the various stages of the design of the study, that whilst these four factors can be considered individually, they are highly interrelated. Thus, decisions taken with respect to one, such as sample size, had inevitable consequences for the others. For this reason determining the final plan for the conduct of the study became an iterative process of weighing the merits and drawbacks of the different factors and ultimately having to make choices based on the available resources. It is a discussion of that process which follows.

As explained earlier, commensurate with the small scope of the study, both financial resources and time were crucial limiting factors that had a significant affect on the design of the study. One key choice was between a study based on a few in-depth investigations or attempting to visit a large number of institutions in a short space of time. Another facet was ensuring that at least one Scottish institution was included in the study. It was the financial

[2] These reasons included, for example, the timing of the close of the academic year in Britain and constraints on leave for the author.

resources required for the conduct of the fieldwork that had the main impact on this decision. Firstly, cost limited the number of researchers to one, the author. Secondly, these costs, together with the time constraint, limited the number of institutions that it was realistic to visit.

Thus, having weighed up all these aspects, including the qualitative nature of the study, it became apparent that the number of institutions selected, or the sample size, had to be small. It was finally decided that the optimum number for the sample was a minimum of four and a maximum of six. In terms of the final research plan the actual number would only be settled when, having contacted the institutions, all the arrangements were concluded.

One initial question that needed to be addressed was the way in which the whole population from which the sample would be selected was defined. A possible definition might be all the publicly funded higher education institutions in England, Scotland, Wales and Northern Ireland. A further definition might be all the academic staff in those institutions. Both these definitions give populations of considerable magnitude beyond the scope of this study. Thus, given the practicalities of the study and the necessity for a small sample size, in the process of selection inappropriate institutions were filtered out.

To meet the needs of the study institutions were handpicked by making a series of choices on the basis of a set of criteria. Firstly, from the outset the plan had been to focus specifically on the universities, thus on the basis of this criterion the Colleges of Higher Education and other institutions offering higher education qualifications were excluded from the study. The second criterion was that the university offered degree (and HND) courses in Biological Sciences and thirdly that these courses were modular.

At this stage in the selection process a decision had to be taken with regard to the identification of an appropriate database of information from which to continue with the selection. This was addressed through utilising the list of institutions in the handbook *'Biology for the Future: Higher Education Courses*

in Biological Sciences and Related Subjects' (IOB & CRAC, 1995). The handbook gives detailed profiles of sixty-six institutions and lists a total of one hundred and sixty-five institutions, which offer Biological Sciences courses at higher education level. This total list could be considered as representing the whole population or sampling frame from which the sample to be visited was selected using the pre-set criteria.

Thus, on the basis of applying the three criteria discussed above, together with a fourth criterion that the university offered qualifications and learning programmes in Biotechnology and Food Technology, a preliminary selection was made. At this point in the planning the lack of information in the handbook relating to Food Technology forced a decision to focus only on institutions with provision in Biotechnology.

The fifth criterion for selection excluded the qualifications and programmes with a heavy emphasis on plant biotechnology which is not part of the programme at M L Sultan Technikon. In this way a list of twenty institutions was drawn up. The last criterion was that the institution was a 'new university' or 'ex polytechnic'. This was deemed to be appropriate because the philosophy of the old polytechnics had much in common with that of the technikons as Chapter 1 sought to explain.

In this way a 'first choice' list of ten institutions to be contacted was drawn up. At this point in the process, time became a limiting factor. It was essential to make contact with appropriate schools or departments within the universities and to finalise the detailed arrangements for the fieldwork visits as expediently as possible. The five universities which became the focus of the study were those from the list of ten which gave a speedy and favourable response to the proposed visit.

Thus, through a process of filtering, using a set of criteria, five universities were chosen. The approach adopted has characteristics in common with 'criterion-based selection', a method which requires the researcher to 'specify in advance a set of attributes, factors, characteristics or criteria that the study

must address' (Cohen *et al,* 2000: 143). The final sample comprised four universities in England, namely: Manchester Metropolitan University; the University of the West of England; the University of Wolverhampton; and the University of Sunderland and the fifth was Napier University in Scotland. Each was a new university, offering modular programmes in Biological Sciences, specifically in Biotechnology.

This process can be analysed with respect to the four key factors to be considered in sampling, namely sample size, representativeness, access and sampling strategy identified by Cohen *et al* (2000). Firstly, as outlined in Chapter 3, the style or scope of the research can have a bearing on the sample size. Whilst in this study the quality of the data obtained might have been improved by visiting more universities, it was explained that the number of visits was dependent on several limiting factors, mainly time, money, and the number of researchers. When the limiting factors are considered together with the purpose of the research it was appropriate that a small number of universities was selected for the study. To attempt to address any criticisms of possible shortcomings in the conduct of the study presented by the sample size one strategy that was adopted was to collect supporting data from two other sources, documentation provided by the five universities and the literature. The use of data from other sources to strengthen and support some of the data obtained directly from the respondents provides for a type of methodological triangulation.

Secondly, because the sample size was small and hand-selected, questions can be raised about the representativeness of the sample. As Cohen *et al* (2000) assert the researcher needs to consider the extent to which it is important that the sample in fact represents the whole population in question. One of the purposes of this research was to seek critical knowledge by exposing emergent trends and individual attitudes rather than produce empirical knowledge. Arguably then the degree of representativeness required was low or of less import than it would have been in, for example, a large-scale quantitative survey with the purpose of making generalisations. The sample selected could be described as being exemplars '*from* a

population', rather than as exemplars '*representing* a population'. Therefore, it can be maintained that the sample in this study, although being what Cohen *et al* (2000: 104) describe as 'deliberately and unashamedly selective and biased', was appropriate.

Thirdly, the issue of gaining access did not have an impact on the conduct of the study. The institutions which comprised the sample, and more specifically the schools and departments of Biological Sciences, took the responsibility for access when they accepted to participate in the study. The fourth factor to be considered is the sampling strategy. In this study a purposive or non-probability sampling strategy was adopted where the researcher handpicked the universities to be included in the sample. Again, relating to the purpose of the study this was deemed to be appropriate.

4.4 Selection of respondents

In the original research proposal it had been anticipated that preliminary contact would be made with the selected universities and that relevant documentation would be sought prior to the visit. Thus, it was planned that the key staff to interview in management, and the appropriate programme or course leaders, lecturing and technical staff would be identified before the visit. However, during the actual organisation of the visits time became a limiting factor. Initial contact was made in each case with a specific person whose contact details were elicited from the *'Biology for the Future'* handbook (IOB & CRAC, 1995). Once that contact had been established the decision about appropriate people to meet came from within the school, department or university. Thus, contrary to the intention in the original plan, ultimately the individual universities chose the respondents for this study.

There were a number of factors that influenced this process of selection. One of the biggest obstacles was establishing communication. Because of the costs incurred with telephonic communication for the most part arrangements were made electronically. Whilst this was an inexpensive means of contact it did limit the people that the researcher was able to connect with prior to the visit. A second, and very important factor, was that the choices made by the

individual universities collectively skewed the profile of respondents. Eighteen of the twenty respondents were male therefore gender representation was poor. All the respondents were either in senior positions or a position that carried specific responsibilities in the modular scheme. All the respondents had significant teaching experience. This ranged from a minimum of fifteen to a maximum of thirty years, with the majority having over twenty years teaching in higher education.

It had been planned that the study would be mainly limited to academic staff in departments or schools offering qualifications (awards) in Biological Sciences, in particular awards in Biotechnology. However, the selection of respondents by the universities had the affect that four of the twenty respondents fell outside this category. Two of the four were from a Quality Support Unit, one had a disciplinary background of Geology and Environmental Science, and the fourth was a member of the senior management team for the university as a whole. Rather than detracting from the study these respondents added fresh perspectives to the data gathered, and thus enriched the research. An overview of profile of the respondents is given in Appendix 1.

Thus, collectively the respondents were an impressive group in terms of status and experience. Whilst, in common with the sample of institutions, the choice of the respondents could also be critiqued as having been biased, but in the conduct of this study the selection was beyond the control of the researcher. On reflection, one possible strategy to have considered was a deliberate request to the universities that a cross-section of staff be included in the study.

4.5 Data collection

In the original research proposal it was planned that the data would be collected using either non-standardised schedule interviews with key staff, or where such staff were unavailable for interview, to administer a questionnaire. This was consistent with the notion, introduced in Chapter 3, that an interview could be considered as being an oral questionnaire. The actual process of

designing the questionnaire and interview schedule unfolded in a situation where it was impossible to anticipate in advance how, with whom and in what context within the selected universities the data would ultimately be gathered. Thus, the decision to develop the instrument for data collection in such a way that the *same* instrument could either be applied as a non-standardised interview schedule or as a questionnaire was taken. In conducting the study the ability to apply the same instrument in two different ways allowed for flexibility in the data collection and for the researcher to respond quickly to different circumstances.

The purpose behind the design of the instrument for data collection was to tease out the critical issues for deeper inquiry from the broad overarching questions that framed the research. In other words to progress from the more abstract to concrete questions. The insight into issues relating to concepts, policy and practice, which had been gained from the initial literature search, played a vital role in this process, which is described in more detail below.

Questionnaire and interview schedule

In terms of the process of development the broad research questions were first unpacked into core themes by using the findings from the preliminary literature search. In the next phase the core themes were further analysed to generate focussed questions which sought more detailed or specific information. In this process there was a necessity for an element of selectivity to attempt to keep the study manageable, thus seven core themes were identified. The broad research questions were as follows:

How is modularisation conceptualised in England and Scotland?
What are the salient features of an ideal modular programme?
What are the implications for policy development?
What is the most effective process for the development of modular courses?

The seven core themes became:

The conceptualisation of modularisation
The nature of the process
The role and composition of the Programme/Course Team
The impact of local and national developments
The impact of modularisation on students
The opinion (of the respondent) of modularisation
The most important piece of advice for M L Sultan Technikon

The next stage in the design of the interview schedule was to intensify the focus in each core theme by posing more specific questions. It was critical at this point to be mindful of the intended approach to the study, and that through adopting a qualitative approach an abundance of personal data was being sought. Such a qualitative approach militated for the style of the schedule to be semi-structured and based on open-ended questions. In general, a highly structured, closed-question (dichotomous, multiple choice and rating scale) format seeks to 'prescribe the range of responses from which the respondent may choose' (Cohen *et al*, 2000: 248). In contrast, a semi-structured, open question format enables respondents to write a free response, to explain, and to qualify their responses without being restricted by pre-set categories which presuppose the nature of the response. Thus, in terms of 'fitness for purpose' (Cohen *et al*, 2000) the interview schedule was designed in a semi-structured open question style (non-standardised schedule). For each of the core themes one or more questions were developed. For example, the theme of 'the conceptualisation of modularisation' was explored with the following questions, which sought to reveal multiple interpretations of the concept:

> How would you define modularisation?
> Do you think that any of your colleagues in the department see it differently?
> Has your understanding of modularisation shifted over time and if so, how has it changed?
> Is what you have described the way modularisation is understood by the University as a whole?

It was anticipated that the interviews would last between thirty to forty minutes, depending on the depth of the response offered. Having developed the interview schedule the next stage was to perform a 'pilot test' to minimise problems such as ambiguous questions or lack of clarity. Five academic staff from M L Sultan Technikon checked the schedule by reading it as a questionnaire and, on the basis of their constructive comments, relevant changes were made and the format of the instrument for data collection was finalised. On the printed copies of the schedule prepared for use as a questionnaire the possible probes were omitted (Appendix 3).

In a retrospective critique of the pilot test several issues can be raised. Firstly, the pilot would have been more meaningful if it had been conducted as an interview. The pilot failed to indicate that there was a problem with Question 6 where respondents were asked 'from your experience do you still support modularisation'. It was only when the schedule was used in the initial interview during the visit that it became apparent that this was a leading question that assumed the respondent had supported modularisation from the outset. This difficulty was overcome in subsequent interviews by rephrasing the question to make it neutral.

A 'preamble' to the interviews, which explained the background to the study and the use of the findings, was also developed (Appendix 2). It was planned that the interviews would be recorded using both audio-tapes and written notation on copies of the interview schedule. This would enable detailed transcriptions to be made for the data analysis phase. Thus, relevant portable recording equipment and tapes were secured and the planning stage was completed.

Conduct of the interviews and the modifications to the method

As a 'novice' in qualitative research the conduct of the interviews seemed at first quite daunting. The first four interviews, at Manchester Metropolitan University, were conducted strictly according to the interview schedule. Apart from probing for deeper understanding there was very little deviation from the prepared questions. As a consequence of the willingness of the respondents to share their ideas and opinions and the wealth of their experience each interview lasted more than one hour. On completion of this first visit the conduct of the interviews was reviewed and as a result the plan was revised to become more flexible. At the next four universities respondents were given the choice of either being interviewed according to the original plan, with the schedule, or of completing the schedule privately as a questionnaire and engaging in a more unstructured conversation. These conversations loosely followed the core themes but the respondents had the opportunity to elaborate on their experiences more freely. In two cases, because of time constraints on the respondents, unstructured conversation style interviews

were held with two people simultaneously. Thus whilst the plan had been for all the interviews to be conducted using the same schedule in practice the data was collected in three ways as indicated in Figure 4.1 below (extracted from Appendix 1).

Figure 4.1: A profile of the method(s) used to collect data from each of the respondents

INSTITUTION	DATA COLLECTION		
	1	2	3
Manchester Metropolitan University		✓ ✓ ✓ ✓	
Napier University	 ✓	✓ ✓	 ✓ ✓
University of the West of England			✓ ✓ ✓
University of Wolverhampton	✓ ✓ ✓ ✗ ✓		✓ ✓ ✓ }✓ }
University of Sunderland	✓ ✗		✓ }✓ } ✓

KEY: 1 Questionnaire 2 Structured Interview 3 Unstructured Conversation (where } indicates two respondents) ✗ Nil return of questionnaire

Of the eight cases where the questionnaire was administered four were completed and returned immediately, two were posted to South Africa at a later date and two were not returned. Thus the total number of questionnaires completed was six.

4.6 Analysis of the data

Interviews and questionnaire

One of the first decisions to be made in the data analysis phase centred around the vexing question of how to process the interview data to transform it from tape recordings and notes into written text that could be then be analysed in order to draw out the key themes. The critical decision to be made was the extent to which the recordings should be transcribed. There was a clear choice between making summaries of the main points raised in each interview and transcribing the recording word-for-word. Whilst on the one hand a summary would be less time consuming to prepare there was an inherent danger of losing some of the rich texture of the responses. The decision was made to fully transcribe each recording because, as explained earlier, this was compatible with an approach that sought to elicit multiple interpretations rather than generalisation from the data gathered. Whilst not completely consistent with the characteristics of a 'thick description' (Geertz, 1973 cited in Cohen et al, 2000: 311) the transcripts would enable the report of the study to contain explanations in the respondents' own words. In this way what Rudduck (1985) refers to as the 'vivid authenticity' of the data could be captured in the report in a manner consistent with qualitative approaches to research.

To facilitate the analysis of the data gathered from the six completed questionnaires the responses were consolidated into one transcript. The nature of the responses to the questions reflected the different approaches that participants had adopted. These ranged from well structured complete sentences to short, terse notes. In capturing the latter in the consolidated transcript and in the subsequent process of analysis there is an inherent danger that the researcher could impose a different interpretation on the data

from that intended by the respondent. This highlights one of the weakness of questionnaires and a comparative strength of interviews because in the interview situation where the researcher is faced with an inadequate response there is the opportunity to probe for deeper meaning to seek clarity.

In the process of gathering and subsequently transcribing the data, in particular that from the interviews, the main contours of the responses had begun to be revealed in the form of central themes. This corresponds to the stage in analysis that Cohen *et al* (2000: 282) refer to as 'generating natural units of meaning'. These themes were explored in more detail in a step-by-step process of analysis of the transcriptions. In the first stage the responses correlating to each theme were coded and nine predominant clusters of issues were identified. Within each of the nine clusters patterns of responses associated with principles, policy and practice were also identified The most common cluster, and that about which respondents had the most views and opinions to express, was related to the underlying principles, and the technical and structural aspects of modularisation. The data was associated with issues such as modules and programmes, choice, and flexibility.

The remaining eight clusters were broadly identified as being: assessment; credit; awards; student counselling and guidance; management; administration; semesterisation and change. In both the stages of interpretation and reporting on the findings it has been necessary to focus only on one main cluster because an analysis of the remaining eight is beyond the bounds of this study. However, the importance of interrelationships between these issues and their influences in the processes of decision-making within the development of a modular system cannot be underestimated. Therefore, a brief discussion of each cluster is offered in Chapter 7.

The unstructured interviews in particular had generated a greater magnitude of data than the scope of the study required. Therefore, the next stage was to extract from the wealth of data that which corresponded to the themes on the questionnaire and ultimately to the research questions. This process appears

to have commonality with what Hycner (1985, cited in Cohen *et al*, 2000) identifies as the activity where the researcher, having noted the units of general meaning, further reduces them by 'delineating units of meaning relevant to the research questions'. The sequence of questions in the questionnaire became the framework for the deeper analysis and interpretation of the data which is presented in Chapter 5.

During the process of transcription and analysis of the data the potential pitfalls described in the literature took on new meaning. A crucial point is raised by Cohen *et al* (2000: 282) who say that:

> In qualitative data the data analysis is almost inevitably interpretive, hence the data analysis is less a completely accurate representation (as in the numerical, positivist tradition) but more of a reflexive, reactive interaction between the researcher and the decontextualised data that are already interpretations of a social encounter.

One of the challenges posed was not to filter out meaning, or impose an interpretation inconsistent with the original sense of the responses. For this reason, where appropriate the report of the data analysis has drawn heavily on the use of direct quotations.

In this study, although the transcriptions were captured and manipulated in electronic format the data was essentially analysed 'by hand'. In qualitative research studies, although it might appear that a computer would do what qualitative researchers want to avoid, namely standardise the process (Tesch, 1990) there is a growing use of computers to assist in the actual analysis of the data. Thus, several relevant software packages have been developed, for example SPSS, SpinxSurvey and Ethnograph (Cohen *et al*, 2000). Whilst the scale of this study did not militate for the use of computer analysis any follow-up study might benefit from the application of such software.

Document analysis

The participants in the study at each of the universities were generous with contributing documentary data. Several different types of document were provided including: Undergraduate and Post-graduate prospectuses; Awards Descriptions; Programme handbooks; module descriptors; policy documents;

Academic Procedures; and relevant discussion documents. These documents were a significant source of data and an analysis of their contents would have been a study in its own right. The information contained within the documents was used in this study to clarify and add further detail, where necessary, to some of the issues and points raised by respondents. The documents therefore contributed to the study in a number of ways, in particular by adding depth and richness to the data, and by enabling issues relating to policy, process and practices to be verified. In this way, as explained in Chapter 3, the documentary evidence contributed to the validity of the data. In Chapter 3 one possible definition for the strategy of triangulation was given as being 'the use of two or more methods of data collection' (Cohen *et al*, 2000). It is argued that in the conduct of this study the analysis of the documents, as a different source of data from the questionnaires and interviews, allowed for a type of methodological triangulation.

4.7 Ethics, reliability and validity in this study

It could be perceived to be stating the obvious to comment that in undertaking any study the researcher must be mindful of ethical issues. What requires great thought on the part of the researcher is the application of ethical principles in practice in the context of the particular study. In this study permission to visit the department, school or unit had been obtained in advance from someone in a position of authority. There was also total openness about the methods to be used for data collection and the use of the findings. Thus, the issue of gaining 'informed consent' was dealt with fairly simply. Informed consent is defined as 'the procedures in which individuals choose whether to participate in an investigation after being informed of the facts that would be likely to influence their decisions' (Diener and Crandall, 1978 cited in Cohen et al, 2000: 51). Participants in this study agreed to be interviewed or to complete the questionnaire and at no time was there any covert gathering of information.

Compared to informed consent the issues of privacy and confidentiality were potentially more complex. There are three perspectives from which to

consider privacy. These are: the sensitivity of the information; the setting being observed and the dissemination of information. Linked to the issue of privacy is the obligation to protect the anonymity of the participants and to keep the data confidential (Cohen *et al*, 2000). In a qualitative study this can pose some dilemmas. The most appropriate way to present a rich and thick description in the report of the findings is to give the account in the respondents' own words in the form of a direct or indirect quote. The tension that is then created is between ensuring the non-violation of the privacy of the individual who made the statement and giving some sense of the context in which the response was made. In this case the context included aspects like the specific university, the department or school, the modular programme and the role and scope of responsibility of the respondent.

Ultimately a decision was taken that since nothing that is cited in the report reflects negatively on any of the universities, and since they are part of the public domain, their identity could be revealed. The anonymity of the respondents was maintained by not revealing their names and through keeping the full transcriptions confidential. Where direct or indirect quotes from their responses have been reported two approaches were adopted. If the information is descriptive their role is included with the quote. If the information could in any way be interpreted as being sensitive or critical of the institution no identifier is included. Two examples, taken from Chapter 5 and indicated with bold italicised text, are given below to illustrate this approach:

> The academic focus switches from the Course Team to [the] subject areas [such as] microbiology, animal physiology, cell and molecular biology...so once the Course Team has decided that there will be a unit, for example biochemistry...10 credit unit, assessment, entry requirements etc...the Subject Group is informed by the Course Team of the types of student operational framework and the Subject Team designs the programme within the structure determined by the Course Team (***Deputy Head of Department: Manchester Metropolitan University).***

> ...***As one academic from University of the West of England explained in an unstructured interview***: There is a danger of some students sort of losing their affinity for a particular award...there might be a group of twenty students enrolled on a particular degree and they go off to modules where there are another hundred and eighty students who they have never seen before (or since) and if you are not careful the cohort tends to get subsumed in this large mass...danger that affinity...loyalty...is decreased'.

As Chapter 3 explained in qualitative research the vocabulary used for assessing the quality of the study shifts from the traditionally used 'validity and reliability'. For example, Lincoln and Guba (1981, cited in Tesch, 1990) replace them with the term 'trustworthiness'. Thus, the validity of qualitative research does not depend on replicable outcomes. According to Tesch (1990: 304) it depends on 'the employment of the data 'reduction' process that leads to a result that others can accept as representing the data'. A good reduction selects and emphasises the essential features and presents the essence. It is in this spirit that the data is presented in Chapter 5.

4.8 Summary

The purpose of this chapter was to offer both a descriptive and reflective discussion of the process of taking the study from a proposed plan through to operationalisation. This process can be summed up as having two phases. Firstly, in the divergent phase the range of options facing the researcher opens up. In the second, or convergent, phase the researcher sifts through the possibilities as being desirable, compatible with each other and workable. In this way an action plan that can realistically operate is developed (Cohen *et al,* 2000). This discussion has attempted to offer insights into what worked well and what changes were necessary during the conduct of the study, and thus to share the decisions made in the divergent and convergent phases of the 'research journey'.

Chapter 5: Analysis of the Data

5.1 Data gathered from respondents

5.1.1 Introduction

The design of the questionnaire and the conduct of the interviews are discussed in Chapters 3 and 4 respectively. In the first section of this chapter the data gathered from the questionnaire, and the structured and unstructured interviews are analysed. The sequence of the information presented predominantly follows the order of questions 1-6 from the questionnaire. As Chapter 4 explained, the questionnaire was also used as the schedule of questions for the structured interviews (Appendix 3). However, the data gathered from question 7, which sought to elicit the most important piece of advice that respondents wished to offer M L Sultan Technikon, is presented differently. Rather than forming a discrete section the data from question 7, together with additional appropriate evidence from documents, is included where it supports the responses to questions 1-6.

In the second section of the chapter (5.2) an analysis of the documents provided by the respondents forms the chief source of the data about the: curriculum and credit frameworks; and the modules and notional study time at each institution. Each of the two sections concludes by summarising the critical issues that the relevant data has revealed to be important to consider in adopting a modular approach to higher education.

5.1.2 Conceptualisation of Modularisation

The purpose of the first set of questions (1.1 -1.4) in the questionnaire was to allow the respondents to explore the conceptualisation of modularisation from three perspectives. Firstly, to elicit their own personal conceptualisation of modularisation, and secondly, to determine whether their ideas had changed over time. The third perspective was their perceptions about the ideas of their departmental colleagues and others within the university.

Personal Conceptions

Not unexpectedly, the twelve respondents to either the questionnaire or the structured interview[1] each worded their personal definitions differently. However, in each response there was a common recognition of modularisation as being the organisation of the curriculum of a course or a programme of study in a way that contrasts with traditional, linear, or non-modular courses. In sharing their personal interpretation or definition the respondents chose an interesting variety of terms, for instance, that modularisation is the:

> fragmentation of a course;
>
> disaggregation of subject elements from single awards and then recompartmentalising them into, sometimes a different sized delivery element;
>
> liberation of the curriculum.

Three people chose to say modularisation was a way of 'packaging' the curriculum or subject material, and five people described it as either the course structure or the learning being in 'small' or 'discrete' units.

These responses can be critiqued in several ways. Whilst they do seem to suggest a technicist conception of modularisation, whereby an existing course structure is merely divided up to become modular, the definitions offered by respondents are consistent with Watson's description that:

> In its simplest sense 'modularity'...implies no more than the division of a course into separate elements, each presented to the student as such, normally with separable aims and objectives and a self-contained assessment scheme (Watson, 1989:2).

But, as Watson (1989: 2) then goes on to point out, doubt has been cast on those schemes which have used the term 'merely to reflect a crude division of a more conventional scheme'. He explains that, in educational code, modularity frequently means a commitment to other principles, which primarily relate to important underlying values and assumptions about learning. In the definitions offered by the respondents in this study some of the essence of these principles began to emerge. Six people highlighted the importance of

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[1]The method for data collection with each respondent at each of the five universities is indicated in Figure 4.1 in Chapter 4 and Appendix 1.

credit and credit accumulation, and five respondents pointed to the significance of choice and flexibility for the student. Three people also made specific reference to modules (or units) being assessed separately. It is notable that these three principles particularly emphasised by respondents: credit accumulation; assessment; responsibility and choice, correspond directly with those that Watson (1989: 2) describes as being 'regarded as fundamental to the educational philosophy of the modular course'. The following statements illustrate how respondents referred to these principles (emphasised with bold text):

> by **adding** the packages together you get the award, the student does (Course Leader: Manchester Metropolitan University);
>
> breaking down of traditional course structures into small units or fractions of a study programme ...embodies the principle of awarding **credit** for such units, and affording **transferability, flexibility** and an element of **choice** (Module Manger: Wolverhampton);
>
> where a module is defined as a **separately assessed** fraction or component of a programme of study (Course Co-ordinator: Wolverhampton);
>
> allows students to have a fair degree of **choice** and **flexibility** in the subjects that they take (Course Leader: Napier).

Two of the above statements emphasise that the packages are 'added' together, and that credit is awarded for 'fractions of a study programme' together with the notion of 'affording transferability'. This is describing, in different words, the first of the three principles, that of 'credit accumulation and transfer', stressed by Watson (1989). The second fundamental principle, that of progressive assessment, begins to emerge in the statement explaining that modules are 'separately assessed. The commitment to both choice and flexibility, clearly evident in two of the statements above, is consistent with the third principle, that of responsibility and choice, highlighted by Watson. The assumptions apparently underpinning these three principles can also be viewed from the perspective of possible reasons for introducing modularisation. Interestingly they fall into what, for example, Allen and Layer (1995: 45) call the 'educational'[2] group of reasons for modularisation.

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[2] According to Allen and Layer (1995: 45) the educational reasons include: 'increased flexibility for students; interdisciplinary opportunities for both staff and students; educational breadth as well as depth; empowerment of students; curriculum development; introduction of skills components to academic courses; enhancing vocational relevance through introduction

Another aspect of modularisation also emerged when four people, highlighted their perceptions about the advantages and disadvantages in articulating their definitions. This characteristic, efficiency for the institution, falls into the second group that Allen and Layer (1995: 45) term 'managerial reasons'[3] for modularisation. It was described at two different universities thus:

> ...as far as the institution goes it allows different courses to share the same modules (Course Leader: Manchester Metropolitan University);
>
> The same module can then be delivered to one or more degree programmes (Director Undergraduate Programmes: University of Sunderland).

However, there is an obvious potential for conflict within an institution around this particular aspect of modularisation. This is discussed in more detail later in this chapter.

An interesting feature to emerge from the definitions of modularisation was the interchangeable use of the two terms 'unit' and 'module' by six of the respondents to the questionnaire or the structured interview. The following explanation, shared by one person in an unstructured interview, casts some light on a possible conceptual difference between modularisation and unitisation:

> Unitisation, really they [the institutions] are still retaining the basic idea of the programme, just breaking the programme down into chunks. There isn't that flexibility across the institution to take modules from different areas...I think the older, traditional universities tend to follow a unitised approach...still keeping their programmes...all they are really doing is ensuring consistency between programmes, so that each unit can be compared to a unit in another programme in terms of the learning hours and the work that a student has to do (Quality Support: University of Sunderland).

The distinction articulated above is supported in the literature, in particular by the HEQC, as the following extract illustrates:

> ...*unitisation* has sometimes been employed by those for whom the term '*modularisation*' has carried overtones of unwelcome and systematic fragmentation of *courses*...*Units* have been presented in some examples of practice as non-standardised segments, including conventional year-long elements. In other words an institution might *unitise* by agreeing to offer students five/six 'units' a year, but not

---

of secondary subjects; student-centred learning; and attractiveness to mature students, particularly through the development of part-time courses.

[3] the managerial reasons include: 'larger classes; higher staff-student ratios; staff rationalisation; the breaking down of disciplinary closed shops; disempowerment of academic staff; increased centralised managerial control; curriculum control' (Allen and Layer, 1995: 45).

> necessarily within a common term, trimester or semester structure. On the other hand, *modules* are invariably offered with a formally designed trimester or semester arrangement, often with a standard length in which the module is always shorter than the length of the year (HEQC 1994a: 127).

The notion that a unitised approach does not offer flexibility, expressed by the respondent above, is examined from both sides in the literature. On the one hand it could be argued that a unitised framework would be associated with a greater degree of prescription and constrained choice, whilst a modular framework would offer greater flexibility and student-determined choice. In reality, however, each framework has the capacity to support either heavily prescribed or flexible programmes (HEQC, 1997). A further distinction between the two could be based on assessment whereby modules are always assessed within the defined period of study whilst units may be examined at the end of the academic year regardless of the period of study defined by the unit.

In the light of these points it could be maintained that because respondents from a particular institution favoured the term 'units' as oppose to 'modules' it might indicate that the university had a unitised framework corresponding to the characteristics described above. For example, respondents at the University of Sunderland tended to refer to 'modules', whilst those from both Napier and Wolverhampton Universities used the term 'unit' suggesting that the terms had a particular meaning in each institution. However, this line of argument breaks down because, as explained earlier, an individual respondent would use the terms interchangeably as the italicised text in the following two responses illustrates:

> ...*units* within an award, with discrete assessments and learning outcomes...knowledge and skills developed within the *module*... (Head of School: Wolverhampton University);

> ...packaging or organising the curriculum, or subject material into discrete *units* or blocks...the same *module* can then be delivered to one or more degree programme (Director: Undergraduate Programmes: University of Sunderland).

These responses do appear to support one of the arguments forwarded by the HEQC (1997) which is that the difference lies more in the use of vocabulary rather than differences in the rationale, organisation and operation of the system. Interestingly however, it did emerge later on in the interviews

that in the Department of Biological Sciences at Manchester Metropolitan University the structural element was a 'unit' rather than a 'module'. Thus, the term had a specific meaning relating to the organisation of the system for academic staff in this particular department.

The responses to the question 'how would you define modularisation' elicited responses across the five universities which drew out more detail about some of the underlying principles and rationale for modularisation. What also began to emerge was a sense of the complexity of some of the issues, and where modularisation could overcome some of the difficulties of the past, as the following statement highlights:

> [It's a] way of having a system where the unit is something that is common to, not just one course, but a number of courses across an entire institution, or indeed across institutions. And that means that you can get equivalencies of credit across more than one course and more than one institution. The value of something in terms of the numbers of credits can be standardised, and also the levels. So you've got the levels [and] the values of the credit, and that means that you can put a number and a credit level on whatever is done. What that means is [that] it can then be used for comparative purposes, and for inter-course and inter-institution transfer. And you know exactly in terms of the credit value that an individual has when you are looking to value that and to give them exemptions from another course. That's it in very simple terms. Of course it gets much more complicated when you start dealing with what the equivalence is in terms of content when you are going from one course to another. When [the learner is] going from one course to another [you] may say that a person's [learning is] worth 240 credits but then [you] have to work out how many of these credits can actually be used against the course they are transferring to. It is a means of doing it, and putting a number on it, in the past it was done on an ad hoc basis and [with] different systems operating in different courses, [and in] different institutions, and it was very much more difficult for people to make these transitions. People tended to take two steps back before they could take a step forward. So I suppose modularisation has made all of that a lot easier. And it's a way of looking at the different sectors in education as well, so that you have got a link between them – FE type education and HE, it makes the transition much more seamless when these [credit] values are spread right across the sectors (Course Leader: Napier University).

It is interesting that this respondent cut across both institutionally-based credit transfer and touched on the notion of a 'supra-institutional credit framework' in his response. According to the HEQC (1994a; 1995a) the latter is a much more 'contentious issue' and 'open to misunderstanding'.

Changes in understanding modularisation

The second perspective that Question 1 sought to explore with each respondent whether their personal understanding of modularisation had shifted with time, and if so, how had it changed.

Only one person responded to this question with an unqualified 'no'. Whilst others said that their understanding remained the same, they were keen to point out that their opinions and insights had changed. Perhaps not unexpectedly, one reason given by several respondents was that the modular system at their institution had evolved and been refined. In the process of evolution, changes which could be viewed as detrimental, had occurred. Some of the responses offered deeper insights into the nature of the reasons for these shifts in their perceptions. At Wolverhampton University these views included: that institution-wide modularisation is much more complex than at the school or faculty level; and that flexibility of choice, because of academic, practical or professional limits had moved to a lower level such that modular routes were the preferred method of organisation rather than offering free choice. The implications of reducing choice are discussed in more detail in section 5.2.

The identification of key managerial issues such as the difficulties of large class sizes, resource allocation, staffing, and lack of delivery of perceived economies mentioned by some respondents at Sunderland, Manchester Metropolitan and Napier are consistent with the findings of a study conducted by Gregg (1996). The general feelings expressed by respondents are summed up in the following two comments:

> [My] understanding [of] what it actually is, no, it hasn't changed. But my views of the difficulties, the advantages, yes that has changed...when I started out I think I had almost universally positive feelings towards it, now I see that there are...difficulties (Course Leader: Manchester Metropolitan);

> In terms of the concept probably not. In terms of the success of the concept I think it is much more problematic than I had envisaged originally. I thought that the many advantages....would translate more in the way of practical advantages than they have...it's not really the concept that is wrong,...it's getting the concept to work in practice, I think that is the difficulty (Course Leader: Napier University).

Another respondent at Napier wanted to stress that, in his view, experience had shown that the 'fragmentation' aspect of modularisation was a problem. He believed that the fragmentation of a course encourages 'pigeon-holing' of learning and that it is frequently difficult to cross-reference from one module to another. He clarified this by explaining that the university had developed

modules that were too small, therefore there were too many in a degree course and consequently the problem of fragmentation was compounded. The implications of decisions relating to module size are discussed in section 5.2.

Such sign posting of the importance of ensuring academic coherence also occurred in responses to other questions, in particular that relating to the key lessons learned about curriculum development which is discussed later in this section. The issue was of such importance to one respondent from Wolverhampton that it warranted being his 'piece of advice' to:

> Seek integrative features [and] be concerned with coherence. Encourage students to bring [the] facts learnt in one module to bear on other modules, not [to] let them develop a 'pass and forget mentality'.

Perceptions of the views of colleagues

The third perspective explored in Question 1 related to the perceptions of the respondents as to what the views of their colleagues in the same department and the university as a whole might be. There was a common perception among eleven of the respondents that their colleagues would share similar conceptions of modularisation to their own. In most cases the justification given for this view was that the institution had a common framework or set of guidelines. However, the twelfth respondent felt very strongly that:

> This [*i.e. his conception*] is not the university perception. It is seen as a way of dealing with large and increasing numbers!

This sense that not all colleagues would have similar conceptions of modularisation was also picked up by one respondent at the University of the West of England, who in an unstructured interview was keen to point out that:

> Modularisation is perceived by different colleagues in very different ways. Some see it as Gods gift to HE, and some see it as the worst thing that ever happened! But it is something we have to live with.

Interestingly, all four of the respondents from Manchester Metropolitan University explained in their own way that the institution had a Credit Accumulation and Transfer Scheme (CATS) framework based on units. Thus, the university did not use the term 'modularisation'. The CATS framework,

under the control of individual departments, was seen as being a big difference between their university and others where, the respondents perceived, there tended to be a more centralised approach.

Thus, the key principles to emerge from the first set of questions were that modularisation has the potential to offer: increased flexibility and choice; improved economy of resources; credit which can be accumulated towards an award; and credit which can be transferred from one institution to another. The merits and drawbacks that emerged in the discussions with respondents about their perceptions of modularisation are consonant with what Watson (1996: 7) has termed an 'inventory of reasons for and against modularity'.

5.1.3 Nature of the process in the Department or University

The purpose of Question 1 had been to establish a sense of the respondents' perceptions of 'modularisation'. The focus shifted in the second set of questions (2.1 - 2.6) towards the process that had been adopted in general by their particular university, and specifically in their department or school.

Particular initiatives (circumstances) to which modularisation was a response

The nature of the process was first explored by asking respondents to reflect on whether modularisation had been a response to a particular initiative, or set of circumstances (either internal or external) which had impacted on the university. A number of the responses identified factors that could be described as external pressures, influences or impositions. For example, each of the responses by three people from Napier University gave closely correlated evidence that, in their opinions, modularisation had been adopted because other universities were modular and in particular because of the influence of other countries, in particular the United States. This is clearly indicated in the following statements:

> Modularisation seems to be an unstoppable movement...90% of UK Higher Education Institutions are now modular. Senior university staff travelled extensively to compare the various schemes operated elsewhere prior to modularisation at Napier in 1992;

> My understanding was that there was a fact-finding tour of members of the Academic Standards Committee to the [United] States, and it was decided that Napier should adopt a modular scheme. So in that respect it was imposed upon the academic staff;

> I think that it was a response to external pressures, nationally as much as anything else. Which of course has been influenced by the more modular system that they have in the [United] States for example.

Other external pressures cited by the Napier academics included that it was a time when the nature of education was changing, brought about by the change in circumstances that caused an increase in the numbers of students coming into higher education. Respondents at both Sunderland and Wolverhampton also echoed that the pressure came from increasing numbers and 'the expansion in HE'. As one respondent from Wolverhampton put it modularisation was a response to the:

> increased heterogeneity of intakes [so] it was seen as an innovation to solve or address the problem of widening access/open access.

Across all the responses elicited three suggested that the pressure had been on increasing efficiency by 'bringing several courses together', 'that modules could be shared between departments so that there wouldn't be duplication of efforts', and 'because of inefficient use of physical and human resources'.

Reasons that could be considered to be internal factors were also described. At Manchester Metropolitan two people thought that the appointment of a new Head of Department, who came from another institution which was already modularised, was a 'catalyst' coupled with the fact that 'modularisation was generally in the air'. One Course Leader at this university thought that it had been a natural progression because the department already had a history of offering HND courses which were unitised. These units provided the seeds for the modules which were developed. His explanation that 'it's whether you independently assess them...that becomes the [criterion]' is consistent with the distinction between 'units and 'modules' offered earlier.

It is striking that the majority of respondents only cited reasons that clearly fall into the 'managerial group' discussed earlier, for example increasing student numbers and shrinking resources. The emphasis on these reasons might be expected considering the prevailing changes in the resource climate for higher education in the United Kingdom. However, it is perhaps significant that

respondents scarcely mentioned any 'educational reasons' when they were describing the initial thrust for modularisation.

Main issues debated

When respondents were asked to reflect on the main issues that had been debated in the department (Question 2.2) their responses were particularly interesting because of the range of issues that emerged. However, there was very little consistency in the views of respondents even within the same department. For example, at Wolverhampton University one person said there had been very little debate, apart perhaps 'as to whether assessment was as searching' within modular programmes. This seems to be in sharp contrast to two of his colleagues whose list of issues were both more extensive and together covered: administration; coherence of the programme; tutoring; management of wider schemes; size of modules; pre-requisites; duplication of subject matter; projects and independent study. The key issues that surfaced at the other institutions also included: the most appropriate type of modular scheme; moving to named routes; module 'ownership'; regulations; identification of the advantages; efficiency; extent of choice to be permitted; and course review. The catalogue of issues that the respondents identified as having been debated within the department cover both the educational and the managerial categories.

In this analysis a major assumption has been made that the respondents, in response to the question about the key issues that were debated, would desire to share those issues which they considered to have been of importance both to themselves and to the department. However, it is important to note that this assumption could affect the data. As Judd *et al* (1991) warn:

> Our everyday reliance on people's reports of their experiences, beliefs or behaviour underlines the general usefulness of questionnaires and similar approaches to research...we ordinarily assume that the statement [made] accurately represents his feelings. However, everyday experiences also make us aware of the potential for unreliable or invalid responses to questions. Although we ordinarily accept verbal reports as valid indicators of the speaker's beliefs, we are aware that the speaker's beliefs themselves may at times be inaccurate (Judd *et al*, 1991: 214).

What Judd *et al* (1991) are pointing to, for instance, is that respondents may desire to create a positive impression with the interviewer. The analysis of the data relating to the main issues debated in the department assumed that the responses would accurately represent the respondents' feelings. Based on this assumption the information elicited is perceived to be of value because it signposts some of the key areas that need to be considered in more depth, for example that of assessment. The issues that were repeatedly raised by respondents are discussed in Chapter 7.

The process of modularisation in the Department

Question 2.3 sought to flesh out in more detail the nature of the process of modularisation in the respondents' particular academic department. By cross-referencing the individual accounts, given by five respondents, the determinant characteristics of the process at Napier emerged. Modularisation, which had been introduced at a very fast pace in 1992, had a 'university decided' (i.e. imposed) overall structure. On a departmental basis decisions about the size of the modules had to be made. The constraints that were imposed meant that it was 'not encouraged, in fact [it was] actively discouraged, to have modules of more than a semester [in length]'. The minimum size of the modules was stipulated together with permitted multiples of the minimum (Table 5.2). Some of the implications of such constraints on, for example student choice are discussed in section 5.2. Interestingly Gregg (1996: 11) noted in her study that many academic staff she had interviewed had reported that the 'decision to modularise had been unilaterally imposed. Significantly, she points out that 'when staff feel that modularisation is at worst a government or managerial conspiracy' the process of transition is 'inhibited'.

Another imposed constraint at Napier was that of the fifteen modules taken by each student in each year, two were to be chosen from the Elective Catalogue. Within the constraints imposed the department took decisions about the structure of the courses. There was a tendency to opt for the minimum module size in an attempt to maximise flexibility. The named routes within the scheme were determined, these included Biomedical; Microbiology/Biotechnology; Environmental; and Health Studies. The fifth

route to emerge was Biological Sciences which 'was pick and mix so that [students] could pick bits from one or other' of the named routes. It was particularly important to 'get the structure right because the first year and a half was completely common to all the routes'. The process that led to making decisions about the named routes and the 'content of the modules' had entailed a 'series of fairly lengthy staff meetings'. The latter part of the process where the individual modules were developed had been 'very rushed'. This led to difficulties in, for example, 'the co-ordination of assessment schedules across courses'. The time factor for developments in the opinion of one respondent had 'limited the extent of curriculum changes'. However, as a result of a wide-ranging review conducted by the university a new overall structure which had 'been agreed with very much longer and more detailed consultation across the university' would be introduced in 1997 (this is discussed in more detail in section 5.2.4 of this chapter).

In contrast to Napier the process described at Wolverhampton University appeared to have been less problematic. One respondent fixed the start of the modular initiative as being a discussion at a departmental meeting in 1970. As a result the BSc Biological Sciences course was 'simply rearranged to be modular'. Staff suggested the modules that they would prefer to offer and 'almost all were accepted without debate'. There was little change in delivery except for the adoption of a day block timetable. After the initial pilot other courses were modularised through 'dissemination of best practice distilled from [the] experience of 'guinea pig' departments'. A colleague added additional detail in his written response to the questionnaire:

> [The] focus was on one course in one department initially. [There was] little, if any, change in delivery except for [the] adoption of [a] day block timetable. [The] content expanded overall but any one student covered [the] same amount of material in their degree due to choice of only some modules. No change (or even debate) on curriculum learning goals...everyone assumed they knew what was required for a degree course!

Respondents at Manchester Metropolitan University tackled the question about the process from different angles. A senior manager in the department concentrated on the events in 1993 when 'we were fully modular, working within a particular framework'. This framework dictated a one hundred and

twenty-credit year, and unit sizes of ten or twenty credits, with either size being considered as a 'full unit'. So he explained that the approach had been to:

> start with the structure then...consider the contents of the boxes (individual specialisation or integration...then [consider] assessment - is each unit going to be assessed separately or at [the] year end?...then will it run as [a] block or long thin strand?...and how are we going to express the material?...our units are written in learning outcomes.

Another respondent picked up that the process had involved extensive decision-making about the curriculum, for example, trying to 'establish such things as the core curriculum required in the first year to support gradual diversification of studies in the second and third year'. The department had developed a first year with 'virtually no choice, apart from an elective slot'. Thus key decisions had to be made about what was the core that every student should have. This respondent explained that there were 'inevitably lots of conflicts...lots of political issues to do with underpinning [knowledge]'. Other factors that had been considered included to what extent 'all the other baggage of modularisation that comes from North America - like semesterisation' had to be embraced. Interestingly, although in 1988 the department had moved to semesterisation, by 1996 there was a hybrid situation with semesters on some courses and long thin modules in others.

The explanations offered by the two other respondents at Manchester Metropolitan University focussed on the fact that core teams met to establish the 'broad skeleton of the course'. The unit co-ordinators then developed the units for which they were responsible. Notably both these respondents highlighted the lack of communication between the individual units, although as one commented 'in theory there should have been'. In part the lack of communication had been addressed by the establishment of Course Committees which meant that the 'discussion that takes place is more formal [and related] to the Quality Assurance issues'.

In an unstructured interview at the University of the West of England the process was described as having been initiated by a university-wide decision to go modular in 1993. A central (university) committee had established a set

of Common Assessment Regulations that were the 'foundation on which Faculties should develop their programmes'. The Regulations allowed for limited variations between Faculties but such variations had to obtain approval from the central Programme Approval and Credit Unit (Quality Assurance). The key role of the Unit was to ensure that 'all faculties are following the rules and regulations and that the modules are deemed to be of an adequate standard'. At a faculty level meetings were convened. At this stage there were no departments in the faculty 'the departments evolved after the modularisation process was in-train'. This respondent explained that:

> Each award, each degree course was given the task of producing modules from the lecture programmes that it was delivering. That wasn't as difficult as you might imagine because pre-modularisation the students had lectures in various subject areas, and they were then just written up as modules. There had to be some truncating because the modules [are] twenty credit modules in this Faculty.

Key players

The second set of questions (Question 2.5) also sought information as to the key players that had been integral to the process and it became evident from the responses that across the five universities there were significant differences in the range of role-players involved. At the University of Sunderland 'initially degree/programme course teams' had been involved. However, as a Director for Undergraduate Programmes elucidated, the university had restructured at the same time as modularisation was introduced. Thus 'module ownership was taken over by academic staff teams'. Whilst, in some schools this had been discipline-based, in others the teams had been structured otherwise.

At Napier University one respondent said that 'originally each course executive did the job'. However, he went on to explain that for rationalisation to occur groups representing departments, rather than specific courses, are required. Another of his colleagues also identified the Quality Assurance Unit as having given directions to Heads of Department with respect to the 'size of the modules, number of modules and requirements for the number of credits at each level...to introduce a uniform system across the university'. One of

the Course Leaders added a further layer of detail when he described the major input from the Enterprise Unit:

> Their role was to try and bring in all the enterprise and transferable skills to be part of the modularisation process...they produced some guidelines as to what sort of skills should be there, what sort of level certain things should be at...to bring in the transferable skills and things that employers wanted as well as the subject based knowledge and embed that totally within all our courses...it was part of each module descriptor that we had a section on enterprise, every single module.

At Wolverhampton University the list of role-players specified included: Heads of Department; Subject Leaders; Course Leaders; Module Leaders; the Academic Registrar; Course Planning Committees and Faculty managers. Interestingly the Head of School identified 'students, graduates and employers' as participating in the process.

In sharp contrast to the more catholic approaches adopted at Napier and Wolverhampton the responses from Manchester Metropolitan University suggested a considerably insular process. One respondent described the process as having been 'driven at departmental level' and that 'no one from other parts of the university' had been included. Another respondent in the department further supported this by explaining that the process had involved:

> All department staff and [had been] based on staff experience...[it was] all departmentally based...don't want all embracing modular scheme that broke down departments and disciplines [we are] strongly in favour of maintaining departments and disciplines as clearly defined wholes within which you operate [the] modular system.

Dealing with problems specific to Science

Opinions about another potentially important aspect of the process was pursued by asking respondents how the problems specific to science, in particular the incorporation of laboratory work, fieldwork and industrial placements, had been dealt with (Question 2.4). Not surprisingly the specific experiences of respondents at each of the universities put a different spin on their answers.

While on the one hand the specific problems were considered by one respondent to have been 'quite easily' dealt with at Wolverhampton, at Napier a respondent considered the incorporation of practical work in the modular scheme to have been 'problematical'. Another striking difference was that at

Manchester Metropolitan the decision to have a common practical unit which integrated laboratory work from several subject areas for first-year programmes had been taken, whereas at other universities the laboratory skills were delivered as part of a specific module. The interesting insights that emerged about the two sides of the debate around a 'common practical module' versus laboratory work embedded in several individual modules are discussed in more detail below.

At the University of Sunderland one respondent highlighted three features, each of which had been managed in a different manner. According to him whilst the laboratory skills were delivered as part of the module, both fieldwork and field 'laboratory' were delivered as discrete modules which attracted credit. During an unstructured interview another respondent explained that the issue of the introduction of a common laboratory module for first year students as opposed to laboratory work being embedded in individual units or modules had been discussed. However, he added that although a proposal to shift to a common first year had been mooted because 'it was seen as a cost-saving measure', the idea had been dropped because it 'depended on having huge first year labs'.

The theme of a common module was also picked up at Napier University. Here the respondents regarded the whole issue of the incorporation of practical work very seriously and signalled some specific reasons why changes were being considered. For the most part practical work had been included in the modules together with the theory. However, as one person explained 'it has tended in some cases to skew assessment so that poor exam performance was compensated by high marks for laboratory work'. Thus, it was likely that minimum levels of attainment in both elements of assessment would be introduced. In some cases departments were considering dedicated practical modules as a solution to the problem. The same solution was also identified by another respondent but for a different reason. In his opinion one of the major factors was the managerial problem of 'a time-tabling nightmare'. As he explained:

> We find that it is only possible to timetable a two or three hour slot in a week. Once you get to the higher levels of science, molecular biology for example, then the problems of having laboratories booked for a whole day or several days are quite enormous.

Thus, academics were favouring the introduction of a stand-alone laboratory module. Another respondent at Napier further strengthened the evidence for this shift. In his responses in the structured interview, he considered the various arguments for the decision, and pondered some of the educational factors. One that he discussed in some detail was that 'there's not enough laboratory modules in one course to have one in microbiology, one in physiology, [and] one in biochemistry'. Thus, they had decided to put together a laboratory programme that contained a mixture of subject areas. Furthermore, the module would not just contain 'bench-work' but also a 'whole series of skills related to practical work...introduction of the practical work, discussion of it prior to it, analysis, review and reflection afterwards'.

At Manchester Metropolitan University the result of the debate as to whether to have the laboratory work associated with the independent units or to put it all into a separate practical unit had been a hybrid of the two approaches. The rationale appeared to be strongly educational:

> The debate was do you associate [laboratory skills] with each unit so each is totally independent or [do you] put all the lab work into [a] separate practical unit? We've done both. Year 2 and 3 units are all independent (all 20 credit units). [In] Year 1 there are four ten-credit units which are practical units [and the] programme runs through all four units [so it is] integrated and [and it is] continuously developing common skills. [Students] start with basic skills [so they] learn techniques and develop practical skills. Before modularisation each subject had its own practical skills [which] has advantages. [The] decision [was] to go for a more integrated approach [with a] lab schedule that is pretty well prescribed [with the] text written and graph paper provided. As [the students] move through the first year course [there is an] increasing complexity, and increase in a student-centred approach. [At the] end the student is writing full practical reports alongside [the] development of particular technical skills. [You] can't do that as easily if everyone is doing independent practicals.

However, not all the respondents were comfortable with the approach that had been adopted at this particular university and were thus able to pinpoint some of the inherent difficulties. For example, one respondent had particularly strong reservations about the reduction in the amount of practical work because:

> It then becomes absolutely paramount that you analyse very carefully what skills you are trying to develop and then to devise a suitable means to develop them, and I don't think we've addressed that in our new scheme yet. In my view what has failed in that is [that] the actual skills, [the] manipulative skills are not happening yet [because they] haven't *really* been identified.

At Wolverhampton University one respondent described the problem of practical work as having been solved quite easily but pointed to some underlying difficulties. One of his colleagues added deeper insights by explaining that:

> Laboratory skills (practical) [were] initially incorporated into each module (6 hour day block modules - 2 hours lectures, 1 hour tutorial, 3 hours practical). Now practical work [is] reduced and only 3rd year modules have associated practical. 1st and 2nd years have a core practical course that all students on Biological Sciences modules follow.

At the University of Sunderland a variable approach had been adopted for industrial placements. For example, in some degrees this element was awarded credit (at level 2), while in other degrees the placement was for short time periods and no credit was awarded. One of the principal reasons for this was associated more with the difficulty of securing appropriate placement rather than with the design of the modular scheme. Two respondents at Manchester Metropolitan University also expressed a view that industrial placements had been of value, but in common with the University of Sunderland, some difficulties with placing large numbers of students had been encountered. One solution had been to:

> Design a module for students not [going out] on placement [as an] alternative unit. [We] tried to make it common to the sorts of skills they would get from industry [so] they work in groups to give experience of teamwork. [There is a] short practical project. The bit which doesn't mirror industry is an exam, which is student-centred with [specific] topics [and a] literature search (Course Leader: Manchester Metropolitan University).

Important lessons learned about curriculum development (during the process of modularisation)

The section about the nature of the process closed with a question about the most important lesson that had been learned from modularisation about curriculum development (Question 2.6). Two main themes emerged from the responses, one, which could be regarded as a technical issue, was the danger of 'duplication' of subject content. The other, which could be

categorised as being an educational issue, was maintaining 'academic coherence' and guarding against fragmentation.

With regard to the issue of duplication as one respondent from Wolverhampton University put it '*some* duplication is probably unavoidable, but the problem is very real and needs watching'. He believed that as a solution to the problem there was a need for someone with a 'very broad overview of biology in order to co-ordinate the modules' to identify the duplication of content. Although not all the students 'did modules which overlapped' some students 'played the system by choosing such modules to reduce the workload'. In other words the overlap of content encouraged the students to engage in what Watson (1989 & 1996) calls 'tactical behaviour'. The Course Director at Manchester Metropolitan University looked at the same issue from the perspective of academic staff. There was a need, he said, for academics to 'accept horse-trading', and to 'rapidly learn the lesson of prioritisation in terms of [academic] content'. The key, for him, lay in negotiation with academic colleagues in order to avoid overlap.

The second common lesson about curriculum development mentioned by several respondents across the universities was that of maintaining academic coherence and guarding against the 'threat' or the 'danger' of fragmentation. As one senior respondent from Sunderland commented in an unstructured interview:

> Modularisation does have things to offer, but you've got to be very, very careful, you are in danger of losing the academic focus and the coherence of a degree and its academic development...there is a tension between [the] requirements of the degree programme, keeping the academic coherence and sensibility and development of a programme and introducing a modular scheme.

This respondent pointed out that there was a 'spectrum between a programme that was highly focused' and a programme where the modules for the programme are 'more widely dispersed'. He explained that for a focussed programme, for example Environmental Biology which is discipline based, all the modules are 'coming from pretty well the same source', such as the same school or department. In this case a 'suite, a package of modules' had been developed from the existing programme The identity of the 'old course team'

had been maintained in the new module team and this had helped the academic focus to remain. Where the modules for the programme came from more diverse sources then 'it is a bit more difficult to keep the team together'. The result, in his opinion, where 'you are drawing modules from outside the department' was that the difficulties were exacerbated and the academic focus or coherence was compromised. He explained that:

> You lose the cohesion of a good programme team and you lose a curriculum which is tailored, or focussed, on delivering a particular product of a programme. So for example, if you are delivering geology for Environmental Studies students then you would get geology that was focussed and dealt with things environmental. So it would be geared for those particular students on that particular programme, and delivered in such a way that took their programme aims and objectives into account. Now, with a modular scheme where perhaps you are delivering the same introductory module to a number of programmes it's less easy to do because each programme might have a slightly different emphasis...and then you are left with the issue of doing something that's a bit generalised for...everybody and you lose that sharp focus that you might have when delivering for a particular programme.

Another important aspect of coherence that was identified by respondents related to students who could 'compartmentalise' or 'pigeon-hole information' with the consequence that 'they get a very fragmented picture of things' or 'cross-referencing between modules becomes difficult'. Whilst this was recognised by some respondents as 'a problem that's not just peculiar to modularisation' it was felt that modularisation exacerbated the problem.

Interestingly, during an unstructured interview at Wolverhampton a respondent picked up this theme, using almost the same words when he described a 'pigeon-holing of knowledge, sort of like a stamp collecting approach'. In his opinion the students say to themselves 'I've done that module, that's under my belt', in other words the students felt that that particular piece of learning was no longer relevant to their programme. This respondent went on to give, what was for him a 'classic example':

> We have developed modules [where the] students don't realise what the significance [to the programme for] doing those modules actually is, for example we have modules on 'Scientific Information and Communication' which the students don't like doing in Level 2. But when they have done their project they realise that [this] is their most valuable module. One way round that is that you need to be transparent and up-front when you explain to the student their programme of study, what [modules] they are doing because they need to be fully aware of why they are doing a particular module, in other words to [be able to] put it in context. That's the thing! (Module Manager: Wolverhampton University).

This issue was also picked up during an unstructured interview with another person in the same school who pointed out that the future of 'Scientific Information and Communication', as a compulsory module was uncertain. Like his colleague cited above this person was also very clear that the cause of the problem was 'because the students don't like it, they complain about it'. However, one of the major implications of discontinuing this particular module would be the effect on the student project work where the skills were seen by many staff to be essential for student success. Thus, the point raised by the respondent above about the need to advise students of the importance of the module by explaining its relevance in the whole programme was again emphasised. This also signals the importance of co-ordinated decision-making amongst the delivery team to ensure that academic coherence is promoted.

A third important aspect related to choice and coherence that was fleshed out in an interview was that unfortunately:

> Students decide that there are some subjects that they dislike...the pick and mix modular system allows students to avoid subjects that they perceive as difficult. That can often leave holes in their education.

The chief implications of this tactical behaviour was pointed out by one respondent who explained that whilst the student might 'get a better degree classification, it's not going to suit them for the world of work to the same extent as a well-balanced programme'.

One other notable curricular change at Wolverhampton University, again highlighted during two of the unstructured interviews, was that they were:

> moving towards Learning Outcomes [and] to remove the mystique around assessment and to link assessment, in the students' eyes, to what we deliver.

To facilitate the shift to Learning Outcomes the staff were 'attempting to identify some of the attributes of a graduate in Biological Sciences', both in terms of 'subject specific outcomes and personal transferable skills'. The curriculum design approach that was being adopted was to critique the first year modules to identify those modules which would introduce the skills and those which would reinforce them. These modules would therefore become

'core' to the programme and students who had followed the core could be expected to have 'achieved those skills at a reasonable level'. The critical point which was emphasised was that 'you can only do that if you have a structured modular framework... if you have a pick and mix some students will have got to the end of the first year not having developed the right... skills'. Again this comes back to reinforce the arguments for careful design to ensure academic coherence.

5.1.4 The Role and Composition of the Programme Course Team

The purpose of the third set of questions (3.1 - 3.4) was to focus on the management of the process and to establish the role that the Course or Programme Teams had played in the development of modularisation.

The specific roles played by respondents and the function of the course team during the development of modularisation

The three respondents at Napier University had each been responsible for a different aspect of modularisation during implementation. Whilst one was a Course Leader for a full-time undergraduate degree, another had taken responsibility for the integration of the part-time undergraduate course into the system as a whole. The third person's role was 'to implement the competence-based system' in the Higher National Certificate and Diploma course where there was a 'totally different assessment philosophy to that which operates on the degree course'.

At Manchester Metropolitan University the Deputy Head of Department explained that

> We were developing a package to apply to several courses. So I had to ensure the co-ordination of course teams for BSc (Hons.) Applied Biology, BSc (Hons.) Biomedical Sciences, the HND Applied Biology and the HNC Physiological Measurement.

Another respondent at this university had been 'very much involved... in developing the assessment side of the package'. In explaining his role further the paramount importance of linking assessment practice with Quality Assurance began to emerge:

> In a modular course with lots of optional routes you've got to be very careful about the QA side. In theory any given combinations of modules should, as far as the teaching, learning [and] assessment experience, be ideally the same, or at least very similar for each possible different combination. In practice that is far from easy to achieve (Course Director: Manchester Metropolitan University).

Other important roles that respondents played included: producing the quality action plan material; organising Course Committees to discuss problems; and organising the time-table(s). One respondent, in discussing his role, highlighted some of the problems inherent with the modular scheme. The course for which he was Course Leader was 'the biggest of all the courses which share the modules'. Therefore, he had to organise the exam papers and the exam boards which 'is a big task'. He explained that:

> doing a course with [a] large number of students, say taking about fifty modules, getting a final exam sheet for the final year is an absolute nightmare...getting it all together and making sure there are no mistakes, it's a nightmare...awful. So a huge thing, organising marks sheets (Course Leader: Manchester Metropolitan University).

What emerged at Wolverhampton University was that staff had taken on a number of simultaneous roles for different programmes, for example one person was Course Leader, Associate Course Leader and Tutor. Another respondent was a member of the Module Development Group that comprised subject specialists and of the Award Development Group where there was cross-subject representation. The need for staff to be involved at different levels was also emphasised by one person at the University of Sunderland who played a role as a member of a Course Team, as a Programme Leader and had overall responsibility in the School of the Environment for 'conversion of all the undergraduate programmes into the format of the university Modular Credit Schemes'.

At Napier University one of the Course Leaders explained that whilst there had been Course Teams in existence prior to modularisation the development of the modular programme had significantly changed the function of the teams. Across all five universities two common features relating to role of the course teams in the process of modularisation emerged. One was the need for regular meetings with extensive debate of the issues, the other was that there could be different types of teams with different compositions and functions. At Manchester Metropolitan University respondents explained that

there were two types of team within what was described as 'a bit of a matrix of course management roles and subject responsibility roles'. The course teams, which potentially involved all academic staff within the department, decided on issues such as the course structure and assessment and the 'all embracing things like admission requirements'. Then, as the Deputy Head of Department explained:

> The academic focus switches from the Course Team to [the] subject areas [such as] microbiology, animal physiology, cell and molecular biology...so once the Course Team has decided that there will be a unit, for example biochemistry...10 credit unit, assessment, entry requirements etc...the Subject Group is informed by the Course Team of the types of student operational framework and the Subject Team designs the programme within the structure determined by the Course Team (Deputy Head of Department: Manchester Metropolitan University).

This was echoed at Wolverhampton University where one form of Course Team was described by a respondent as having 'had no function in the development' but being 'simply concerned with running the finished product'. On the other hand the Course Planning Committee were 'intimately involved in planning the modular course'. Thus, the distinction between a team with a managerial role and one with the role of making curricular decisions about academic content clearly emerges. A remark by a respondent at the University of Sunderland gave some insight into the complexities of the issues around the function of a Course Team when he commented that:

> This varied, where there was a strong discipline-based course team it 'survived', where [the] programme drew modules across disciplines [the] effect was to weaken [the] course team, especially for programmes which staff afforded a 'low' priority. [The] Programme leader in these cases often could end up with little support.

This comment appears to indicate that the extent to which the Course Team functions could have several impacts. There might arguably be a weakening of either the scheme itself or of the learning experiences of the students because there would be less sharing of ideas and less fostering of an interdisciplinary approach when the course team was strongly discipline-based.

The present function of the Course Team

When asked whether the Course Team still had a function (3.3) all the respondents agreed that once modularisation had been established activities

of the Course Team continued. However, it was evident that the role and responsibilities of the teams had evolved with time. Some of the examples of the functions that teams fulfilled included: overseeing the day-to-day running of the course; quality assurance; and meeting with student representatives.

It became increasingly apparent from the responses that the responsibilities of the teams were not trivial and that there were inherent difficulties in the tasks they performed. Two people at Wolverhampton University gave some insight into the scale of what was involved. One described it as 'the task of overseeing [a] highly complex, multidisciplinary course' and the other person explained that with courses such as the BSc Applied Sciences 'there are so many modules available that counselling and administration by [the] Course Team has become horrendously complex!'

In a similar discussion about the role of the Course Team at Manchester Metropolitan University a Course Leader identified one problem with modular schemes being that when courses are sharing modules, there are difficulties with the issue of ownership, in other words who should comprise the Course Team. However, at this university the introduction of an Undergraduate Course Board had opened up the forum that allowed issues of joint concern to be discussed. Across the universities several other respondents also explained that various kinds of Boards had been established over and above the Course Team. It appeared from some of their responses that these Boards were taking up much of the responsibilities that had previously been fallen on the Course Teams. For example at Napier one Course Leader spoke of the important role of the Board of Studies which met four times a year with all the unit leaders present. There was also an Exam Board that met twice yearly. One of his colleagues, who also described the role of the Boards, explained that 'it's been a gradual change, and [now] the Course Leader and the Course Teams role is less important'. The issue of management and decision-making is discussed further in section 5.2.

5.1.5 Impact of local and national developments

The fourth question (4.1) brought respondents back to focus on possible local and national developments that had particularly influenced modularisation. The most common influence cited by respondents was 'Credit Accumulation and Transfer'. This was variously described as:

> A national push towards [the] development of CATS;
>
> [the need for] transferability between institutions;
>
> Credit accumulation and transfer is easier if course components are credit rated.

The second-most popular response was that the change in funding from the Government with the knock-on effect of diminished resources was an important influence.

5.1.6 Impact on students

The scope of this research project was limited to academic staff. However a very important consideration, about which respondents were asked for their opinions (question 5.1), was the impact that modularisation had had on the student experience.

In general the respondents from across the different universities perceived three main, interrelated impacts on the experience of their students. These were choice, coherence, and counselling and guidance. The benefit of an increased opportunity for student choice and flexibility in module selection could lead to both potential and actual lack of coherence in their programme of study. In part this difficulty was overcome by reducing student choice with 'recommended' or 'fixed' routes where 'coherence...is likely to be maintained'. As, for example, the Head of School at Wolverhampton University explained 'the university over the last few years has tried to encourage as much flexibility as possible. They are now shifting back to a more structured organisation of modules'. This trend or tendency towards 'regression' and moving away from the initial ideals of modularisation, the implications of which are discussed in section 5.2 was also identified by the HEQC (1994a).

Another aspect of this was that 'they [students] don't see themselves as cohering as a student group'. As one academic from the University of the West of England explained in an unstructured interview:

> There is a danger of some students sort of losing their affinity for a particular award...there might be a group of twenty students enrolled on a particular degree and they go off to modules where there are another hundred and eighty students who they have never seen before (or since) and if you are not careful the cohort tends to get subsumed in this large mass...danger that affinity...loyalty...is decreased'.

His particular concern was with part-time students, on for example the BSc Applied Biological Sciences. Prior to modularisation the part-time students had 'a large part of that course devoted entirely to themselves'. Post modularisation virtually all their practicals and lectures were with full-time students with the effect that they were 'grossly outnumbered' and they didn't have the same 'esprit de coeur'. His concern was grounded in the unique demands placed on part-time students (work, families etc) and meeting their specific needs.

Counselling and guidance were therefore perceived by the majority of the respondents to be vital, as summed up in one comment that 'counselling of students was found to be essential for them to make sensible and coherent choices'. At, for example, the University of Wolverhampton some counselling was built into the induction week at the beginning of each semester. At this point 'counselling for new modules, exams, perhaps the results from the last semester, and determining what area to do [their] project in' was an integral part of the orientation.

Another issue that was emphasised by one respondent was that he believed 'students think they are over assessed in terms of coursework'. He explained in more detail:

> 'I think one of the most serious problems when you split courses like this is that the module leaders have their idea of what is necessary for assessment. We have so little time and you want to make sure that the coursework that you set covers your idea of what the students should learn...we have recognised...we set them too much...you don't give them enough time to think, they spend all their time writing up lab reports and essays instead of reading text books and going over their lecture notes and thinking about it more'. (Course Leader: Napier University)

The opinion of the respondent above was counterbalanced by the view expressed in an unstructured interview that students liked the change in assessment practice where they were assessed twice in the year. Another relevant point to emerge in an unstructured interview at Wolverhampton was that the move towards Learning Outcomes was in part a solution by eliminating the duplication in assessing a student. As a respondent remarked: 'once they have demonstrated a level of competence why keep making them do it?'

Another important factor on which half of the respondents placed an emphasis was that of 'standards', and whether they had been raised, maintained or lowered as a result of modularisation. This issue is discussed in more detail in section 5.2.

5.1.7 Respondents opinion of modularisation?

Question 6 sought to bring the focus back to the opinion of respondents as to whether they still supported modularisation[4]. Of the twelve respondents to the questionnaire/structured interview, eight answered with a definite 'yes'. The main supporting reasons given re-emphasised the advantages of choice, flexibility, and efficiency of delivery. Two people gave more guarded positive responses, as one said 'you have to accept that there are benefits, but there are certain disadvantages'. A further two respondents were unable to supported modularisation. For one person the disadvantages outweighed the advantages. Interestingly the other non-supporter was at Napier University, and for him the nature of the system that the university had implemented had many serious flaws.

5.1.8 A summary of the key issues to emerge from the data gathered from respondents

Viewed holistically, the data collected by means of the questionnaire and interviews reveals that in the context of the institutions studied:

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[4] **The recognition that this is a biased question is discussed in Chapter 4**

- The terminology relating to modularisation may have different meanings in different institutions;

- The key principles that underpin modularisation are those of the credit accumulation; responsibility and choice and; progressive assessment (Watson, 1989). These principles therefore, inform the practice of learning and teaching in modular systems because they influence: the aggregation of credit towards and award, and the potential to transfer credit, student -led choice, and changes in the pattern of assessment such as the exams being held at the end of the module rather than the academic year;

- The adoption of a modular approach has inherent advantages and disadvantages and that many of the issues are complex;

- The management of a modular programme may be significantly different from that of the 'traditional' programme that it replaces;

- Modularisation has the potential to influence the way in which the laboratory work is incorporated in science degrees;
- Two of the key issues for careful consideration are maintaining academic coherence and guarding against fragmentation;

- There is an inherent danger of 'regression' and that this has implications, for example, for student choice;

These emergent themes and their potential implications for the process of modularisation at M L Sultan Technikon are discussed in Chapter 6. The second source of data that contributed to this study was documentary evidence which is discussed in the following section.

5.2 Curriculum frameworks, modules and notional hours of study at the five universities

5.2.1 Introduction

In the first section of this chapter the data from the responses to the questionnaire and structured interviews, together with relevant information from the unstructured interviews was presented and analysed. In this section of the chapter the focus shifts to the data presented in documents obtained from the five universities and supported by evidence gathered predominantly from the unstructured interviews. This data is discussed from the three main perspectives of: the concept of a curriculum framework (HEQC, 1997); management and decision-making; and modules, credit and notional study time.

During the unstructured interviews several respondents spoke about the importance of clearly establishing an institutional framework within which to develop modular programmes. At the University of Sunderland one respondent pointed out that there was a 'range' of possible structures, and she expressed the opinion that:

> As an institution you've got to decide what it is that you want. I mean we decided to go for a whole modular system which applied right across the university, which creates its own tensions and pressures because of trying to get a consensus view and a system which everybody is happy with.

The criticality of establishing a structural framework was also emphasised by an interviewee at the University of the West of England who said:

> What is crucial is that these transitions are permitted or put in place within a framework...without a framework, where people go at this ad hoc, as I have seen in another university, where they are experimenting with it without a structure, then the problems are so much more severe.

This respondent felt quite strongly that there seemed to be a 'reluctance to observe too closely what is happening at other institutions'. He reflected on what had happened at his university and offered the opinion that in hindsight there should have been more project planning where ' you walk through all the issues'. He explained that the framework issues would include 'policy decisions, academic regulations...commonality of regulations...the

administration of the system, and the handling and recording of data'. Significantly, for this respondent the issue of establishing a framework was vital enough for it to warrant being his 'piece of advice': that it was imperative to:

> Think through the modular framework carefully and introduce [it] in a structured manner, not ad hoc or piecemeal. Also be clear on roles and responsibilities [such as] programme management and quality assurance.

The certainty of the views expressed by these three respondents is substantiated by the findings of a study conducted by the HEQC (1997). This study formed part of an investigation into the effect of the expansion and diversification of the UK education system on academic standards in undergraduate programmes. What emerged was that the increased scale and variety of education, coupled with changes in the range of programme types, curricular arrangements, and assessment regimes[5], had brought about an increased complexity in terms of institutional policy and regulatory frameworks. The study concluded that academic practice was supported, controlled and guided via a family of six discrete regulatory frameworks which, at the time of the study, were in various stages of development at different institutions. The family includes the following frameworks: curriculum; level; award; credit; student assessment; and quality management. Within these six frameworks credit-based modular programmes were designed, provided, and assessed (HEQC, 1997).

To attempt to present an in-depth analysis of the documentation provided by the five universities against all six regulatory frameworks is outside the scope of this study. Thus, the data analysis presented below is discussed mainly from the perspective of two of the frameworks, that for curriculum and that for credit. According to the HEQC the purpose of the curriculum framework is as an enabling device to support the institution in the achievement of the educational mission, and is defined as embracing:

> The principles, policies, guidelines and codes of practice which determine how an institution (and any partners) provides its programmes of study. It regulates the size,

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[5] Concomitant with the widespread adoption of credit-based modular curriculum arrangements

shape, type and organisation of programme elements (modules/units) and the types of degree programme which can be offered. It influences: the way in which academic programmes are organised, taught and assessed; the way resources are deployed to support the learning activities; and the way in which academic standards are defined, measured and confirmed (HEQC, 1997:4).

5.2.2 Curriculum frameworks at the five universities

The defining characteristics outlined above have been used as an analytical tool to extract data from the documents provided by each university. The relevant information for each individual university is presented in Table 5.1: *The Curriculum Frameworks.* A number of similarities and differences between the five universities emerge from the data. For the purposes of this discussion exemplars have been selected to illustrate or support particular key elements.

Firstly, the characteristics of the programme structures at each institution can be compared with the three main approaches to modularity that have been recognised in UK institutions. These approaches, which all mark a move away from the traditional linear curriculum framework[6] and an increase in, for example, flexibility, are defined as being:

Modular structures - unitised single and joint subject courses within a departmental/faculty management framework: assessment is locally managed and regulated; student choice, outside the prescribed course, is limited and CATS programmes (student-negotiated programmes of study) are not present;

Modular schemes - there are two different approaches to modular schemes:

i) An Institutional scheme: single and combined programmes managed by central administration; modules linked or shared between programmes; centrally managed assessment; own regulations; student choice and learner autonomy; students may negotiate programmes;
ii) A Multiple (interconnected) departmental or faculty-based scheme: Single and combined programmes; modules linked and shared between programmes; locally managed assessment; institution-wide or scheme-based regulations; varying student choice (institutions minimum requirements policy may govern individual programmes); CATS in a central unit, departments or faculties;

Credit accumulation and transfer (CAT)[7] scheme - centrally managed; students construct (negotiate) study programmes; scheme has own assessment regulations and

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[6] A Linear framework is defined as that which supports single and joint subject programmes with no attempt to harmonise the number, size or shape of the programme elements. Curricular breadth is designed into each programme and each programme has a unique set of regulations; the main focus for the assessment is at the end of the academic year (HEQC, 1997: 6).

[7] In most institutions the CAT framework developed by the former CNAA has been adopted.

academic standards committee. (HEQC, 1994 a & b and 1995; Jackson and Gregg, 1995).

The data collected from the documents, together with that from the respondents, seems to indicate that a 'modular scheme' rather than a 'modular structure' had been developed at all five universities. This is consistent with the findings of the HEQC that 'new' universities had tended to develop 'modular schemes' whilst increasingly the 'old' (ex-UFC) universities had developed 'modular structures'. One difference between the two being that modular schemes 'always imply greater cohesion and compliance than modular structures' (HEQC, 1997).

Within the modular scheme at each of the five universities an individual department or faculty might have varying levels of 'prescription' of modules for a given programme, route or award. But, at the risk of generalising, each of the five universities could be described as having 'strong' schemes. A strong scheme is characterised by 'achieving general compliance with agreed regulations'. On the other hand a 'weak' scheme is distinguished by 'a multiplicity of special regulations' (HEQC, 1997).

The following two statements made by respondents in unstructured interviews give an insight into the university modular scheme, and convey a sense of some of the definitive characteristics such as common procedures and regulations for assessment:

> All first degree courses operate within a standard, semester-based framework, and the university overall is a fully modular, credit accumulation institution. Within the restrictions imposed by practical or professional limits there is a goal of maximum flexibility (University of Wolverhampton);
>
> The faculty decides on a programme of modularisation, and this has to be approved by a [central unit] in the university which is called the Programme Approval and Credit Unit...it's QA, it's regulations, it's ensuring a basic degree of uniformity across the institution but does allow considerable faculty variation. It's really making sure that all faculties are following the rules and regulations and that the modules are deemed to be of [an] adequate standard...the university produced a set of 'Common Assessment Regulations' which were the foundation on which faculties should develop their programmes (University of the West of England).

Within the broad scope of a 'modular scheme' approach differences between the institutions can be recognised. For example, the evidence from the

Table 5.1: Curriculum Frameworks

	Sunderland	Napier[1]	Manchester Metropolitan
Curriculum framework	Modular Credit Scheme (MCS); CATS Semesterised	Modular scheme; CATS Semesterised	unit-based/modular scheme, CATS Semesterised
Organisation of programme elements	In the School of Health Sciences modules shared between BSc (Hons) Applied Microbiology; BSc (Hons) Biological Science and BSc (Hons) Biomedical Science	In the Department of Biological Sciences modules shared between defined named honours degree routes: Biological Sciences; Applied Microbiology & Biotechnology; Biomedical Sciences; Environmental Biology; and Health Studies	In the Department of Biological Sciences units shared between the Applied Biological Sciences degree scheme, the HND in Applied Biological Sciences, the Biomedical degree, the Combined Studies degree and the Environmental Health degree (units are assigned an appropriate CATS level and credit value)
Type of degree/ degree structure	Leading to BSc (Hons) with min. 3 years of study (optional 1 year Foundation at level 0). Interim awards of CertHE & DipHE. University offers programmes ranging from specialised to Independent Study	Leading to BSc (Hons) with 4 years full-time study (Scotland) Interim awards of CertHE, DipHE & BSc. University offers generalist, named routes (specialised) and Combined Studies	Leading to BSc (Hons) with min. 3 years full-time (optional 1 year Foundation at Stage 0). Interim awards of CertHE &, DipHE. F/T; P/T, mixed mode attendance patterns. University offers programmes ranging from single subject, two/three subjects combined, to Independent Study
Elective modules	In, for example, the BSc (Hons) Applied Microbiology programme one selected from elective per level	Extensive catalogue of free-choice elective modules	Limited elective units
Assessment	University-wide Common Regulations for assessment	University-wide assessment regulations	General assessment regulations for the Applied Biological Sciences degree. Documents make no mention of Common University Regulations.
Management/ Academic standards	Module Leaders for each module; Module Studies Boards responsible for the operation of a portfolio of modules with an associated Module Assessment Board. Programme Studies Boards responsible for the operation of a portfolio of programmes, and an associated Programme Assessment Board (School-based)	Two stages in the process of assessing student performance: Departmental Board of Examiners and Course Board of Examiners	Course Management Team responsible for effective management and organisation of the course. Course Committee responsible for upholding the standards of the course and for overseeing monitoring and evaluation. Course Monitoring and evaluation occurs at 2 levels: informal day-to-day and formal regular review process

[1] implemented 1996-7

Table 5.1: The Curriculum Frameworks (continued)

	University of the West of England	Wolverhampton
Curriculum framework	Modular Scheme; CATS; Designed Credit Accumulation Award (DCA)[2] Semesterised	Modular Scheme; Modular degree Scheme (Combined Award) Semesterised
Organisation of programme elements	In the Faculty of Applied Sciences the Undergraduate Modular Programme is based on multi-functional modules shared by more than one award, and Award specific modules	School of Applied Sciences modules shared by programmes.
Type of degree (for Biological Sciences)	BSc (Hons) with min. 3 years of study (optional 1 year Foundation at level 0). Interim awards of DipHE, CertHE. & BSc. University offers generic award, named awards, BA (Hons) Business Studies with Combined Science and BA (Hons) Science, Society and the Media	BSc (Hons) with min. 3 years of study. BSc (Hons) (Sandwich) min. 4 years of study. Interim awards of DipHE, CertHE. & BSc. F/T, P/T, sandwich or mixed-mode of attendance. University offers four ways to study Biology ranging from specialised study (named routes) e.g. BSc Environmental Science to non-specialised overview e.g. BSc (Hons) Biological Science.
Elective modules	Possible choice of elective module in second and final year	No documentary evidence of elective modules
Assessment	University-wide Common Assessment Regulations	University-wide Academic Regulations
Management/ Academic standards	Award Executives with responsibility for day-to-day management; Award and Joint Award Committees for each Award within a Programme; Field Planning Committees for Biological Sciences, Chemical and Physical Sciences, and Interdisciplinary Sciences; and the Faculty Modular Programme Committee to consider for example structure, module content assessment, programme management, and programme review	First UK university to be awarded the international quality standard ISO 9001 and Government Charter Mark[3]. Awards Committee responsible for overseeing operation of the Awards, Module Managers and Subject Group Leaders responsible for management at module level

[2] The DCA provides for group programmes of study individually negotiated with employers; may include credit for learning carried out in the workplace
[3] In the process of evolution of Quality Assurance at Wolverhampton the university did not apply for ISO 9000 re-accreditation,

respondents and the documents at Manchester Metropolitan University appears to distinguish this university from the others, as one respondent explained:

> [The] big difference between this institution and others [is that we have] not got a centralised approach [we have] got a framework to which people are supposed to adhere, but [it] is under the control of individual departments.

Whilst the evidence discussed above locates each of the five universities in the category of having developed a modular scheme this is not fully representative of programme provision at each university as a whole. When the data presented by respondents is linked with other information provided in public documents, particularly the relevant prospectus, a more complex picture emerges. Each of the universities seems to have adopted what has been termed a 'mixed economy approach'. This approach is characterised by a major institutional scheme combined with separate departmentally/faculty-based schemes; and CATS within departments or faculties or as an independent scheme (HEQC, 1995b; Jackson and Gregg, 1995).

Thus, for example, at Manchester Metropolitan University the '*Curriculum Document*' describes the unitised scheme for the Department of Biological Sciences (within the Faculty of Science and Engineering) and explains to students that:

> Our diet of courses is unit based and expressed in terms of expected learning outcomes, these in turn reflect the overall aims of the individual courses (pi).

However, the complexities begin to emerge in *'The Prospectus'* where the Faculty of Science and Engineering is described as being 'the base for one of the University's Combined Studies Schemes co-ordinating programmes across four Faculties'. In these programmes flexibility in study programmes is provided through features such as 'modularisation, mixed mode study and credit accumulation and transfer'. Hence, whilst some of the programme provision locates the University in the modular scheme category it is clear from the description of the Combined Studies Scheme that certain programmes would fall into CAT Scheme category, therefore across the university as a whole a mixed economy approach has been adopted.

At the University of Sunderland a mixed economy approach was also evident from information shared by respondents in the unstructured interviews. As one person explained the scheme 'was initially called the CAT scheme, then that got changed, [and it] became the Modular Credit Scheme (MCS)'. There were several types of programme within the MCS, as illustrated by this extract from the *'Guide to the Modular Credit Scheme':*

> **Associate Student Programmes** - usually students engaging in occasional modules not leading to a formal academic award, but resulting in a transcript recording the credits gained;
>
> **Named School-Based Programmes** - these may be focused inter-disciplinary programmes, such as BA/BSc Health Studies, or more specialised programmes such as BSc Pharmacology;
>
> **Single-Subject Programmes** - these are included in Named School-Based Programmes, and based on one subject in Combined Programmes (e. g. BSc Applied Physiology, or BA Historical Studies);
>
> **Combined Programmes** - this scheme is probably the most flexible in the university and allows for the combination of two or three discrete subjects from a **defined range**, in a ratio reflected in the award title. For example BSc Geography and Geology, BA Sociology with English, and BA Business and Media Studies and Psychology;
>
> **Independent Programmes** - not part of the generally available range of validated programmes, but with a coherent theme reflected in the title. The programme must go through a validation procedure before the student starts the studies. This programme extends beyond the Combined Programme since students are able to select modules from a wider subject base, for example History and Mathematics, Chemistry and Business Studies. The Programme may draw on the special experience and capabilities of the student, and/or special employer-based projects or professional work in addition to standard modules.

One respondent at the University of Sunderland highlighted aspects of the range of types of programme, in particular the quality assurance for Independent Studies when she commented:

> So that's the framework that we have tried to establish and on the whole it's more flexible than some you'll find at other institutions. What we've tried to do is create a framework where you've got the ability to have the really prescribed courses like Pharmacy, and the accredited courses like engineering and education, [with] very tightly prescribed curriculum, so they are on the one side where there is very little choice for the students. You're lucky if any of them can even manage an elective in some of those courses. So most of what they do is actually within the School. Then you come across to the middle where you've got Single Honours Programmes, but with more choice and flexibility and links to other Programmes. So that, often at the end of the first year, a student has a choice to move across to another programme because there is a fair amount of commonality in the first year, then right across to the Combined Programmes which are the most flexible. And that's where a student comes in and says 'well, I'm not quite sure what I want to do but these are my favourite two or three subjects. I want to start off with those and then I'll end up with a joint, or a major/minor', or that sort of thing. And then the most flexible of all, which I suppose is

> what you think of as pick and mix, is what we call Independent Studies. It's not just like picking different bits out of different bags of sweeties. We design something [with the student] and actually agree a course title and we have to go through a proper Quality Assurance process. So the title at the end is a proper reflection of the course that they have done, and the proper aims and objectives and all the rest of it.

The issue of the coherent academic nature of non-prescribed programmes was also clearly articulated by a respondent at Napier University who said:

> All the CATS [Credit Accumulation and Transfer Scheme] awards are called Combined Studies Awards. But it's not a cafeteria type system, you have to have a coherent academic nature to the award that's being worked towards. And this is reflected in the title of it. So for example, someone could do BSc Combined Studies and in brackets there would be a description of the main thrust of the course, say [for example] Chemistry and Physics.

Some of the documents together with comments from several respondents also emphasised that the evolution, or transition, from one structural arrangement to another had not been, as one person put it 'switched on overnight', but that it had taken place over a time span of several years. This can be illustrated by, for example, Manchester Metropolitan University where the *'Definitive Course Document for the BSc (Hons) Applied Biological Sciences: 1993'* states that:

> Until 1988, the full-time and part-time routes were operated as totally separate courses with no common units and limited opportunity for specialisation. The two courses were brought together in 1988 and share the same units with common teaching.

This document describes the changes implemented in 1993 which included 'CATS related issues'. Statements made by respondents during the unstructured interviews seem to show that these issues had indeed been addressed, and 'internalised' into departments, for example when respondents said:

> It's all set out in the CATS framework;

> [We have a] CATS scheme [and we] must work within the CATS framework document [it's a] University policy with guidelines

Thus the approaches adopted by the department, and Manchester Metropolitan University as a whole, and the development towards a mixed economy approach can be tracked.

However, it emerged that mixing modular schemes and CAT schemes within one institution is not without difficulties. As one respondent from Napier

explained the timetabling of modules has major implications for students on the CAT Scheme since it may not be possible for them to select certain modules because of clashes on the timetable. This has obvious implications for student choice and flexibility and is an inherent danger that needs to be heeded relating to seemingly forward progression with modular developments and provision. Notably Watson (1996); Robertson (1996) and the HEQC (1994a) have highlighted this danger, and the latter comments that:

> With the process of modularisation and credit-based learning in the United Kingdom over the years has been the tendency towards *regression* from initial ideals (HEQC, 1994a: 243)

An example of such regression would be where a scheme could claim to offer credit for prior experiential or work-based learning, or to accept students by credit transfer, but that in practice the students were unable to take advantage of these opportunities. The example of the difficulties around timetabling at Napier University given above signals that administrative issues, or what Trowler (1996) termed 'administrative fallout' could also become a potential cause for regression, as the following statement indicates:

> When the administrative values are the most significant organising principles, academic innovations tend to be observed in the letter of the regulation but not in academic practice (HEQC, 1994:245)

The term 'phantom modularity' has been applied to the type of scheme that implies promises which cannot be delivered. One crucial factor linked to the 'phantom' condition is that of the rationale for, and decision-making in the process of, an institution initially adopting modularity (Watson, 1996: 6). Thus the importance of being vigilant and ensuring that the principles of modularisation, such as choice and flexibility, are not undermined becomes evident. It is also imperative that the institution does not disregard the rationale for initially adopting a modular scheme.

5.2.3 Management and decision-making

Having established the nature of the scheme that had developed at each of the universities a second aspect that warrants discussion is the approach, and supporting structures for the essential management and decision making processes. The types of activities that such management would encompass

include: curriculum planning and new module development; student enrolment, support and guidance; student assessment; and monitoring and review for quality assurance purposes (HEQC, 1994a). The data shown in Table 5.1 focuses in particular on the management of student assessment and decisions about awards.

In terms of curriculum decision-making it is notable that, according to Becher and Kogan (1980, cited in Squires, 1991), there are different levels at which decisions about the curriculum may be taken. These include: the 'basic unit' of the academic department or its equivalent; the institution as a whole; and supra-institutional bodies at a national level. However, in 'going modular' institutions grapple with fundamental changes to academic traditions and institutional practices. It could be argued that one such locus of change is around decision-making such that the levels identified by Becher and Kogan move down to the level of the modules or units that make up a learning programme. This view is supported by, for example Raffe (1994) who believes that:

> Modular systems vary widely. It is useful to think of modularisation as an organising principle which allows decisions (concerning the curriculum, pedagogy, participation, progression and so on) to be taken in relation to smaller units of learning. Modules thus lower the level *about* which decisions are taken, but they do not necessarily bring about a parallel change in the level *at* which decisions are taken. In some contexts modularisation might be used to promote a kind of 'educational Taylorism' in which the more detailed specification of curricula, pedagogy and assessment enforces tighter control over teachers and/or students...In other contexts modularisation might be an instrument of 'postmodern flexibility' which devolves decision-making within a framework which maintains coherence' (Raffe, 1994: 141-142)

Of particular significance here is the characteristic of the curriculum framework that relates to 'the way in which academic standards are defined, measured and confirmed' (HEQC, 1997). The challenging issue of academic standards was the focus of intense debate in the UK, driven by for example, a major programme of research known collectively as the 'Graduate Standards Project'. In this project academic standards were defined as *'explicit levels of academic attainment which are used to describe and measure academic requirements and achievements of individual students and groups of students'* (HEQC, 1995b: 2). There are many important issues in relation to academic standards which include for example, the design, delivery and approval of

modules, courses and programmes; and the assessment process and procedures.

If the logic of the argument that in modular schemes the level of decision-making shifts down to that of the module then it would follow that institutions would need to make systemic changes in order to put in place relevant operational structures. Indeed, on the basis of the operational level at which standards are set a further distinction between modular schemes and modular structures may be made:

> In **modular schemes** the operational level at which standards are set is in the subject or cognate cluster of modules, rather than the award. In these modular frameworks both the academic staff and the subject specialist external examiners provide their main input through the work of subject assessment panel rather than examination award boards. Programmes within modular schemes require threshold standards to be determined at two levels -the module...and the award. In a **modular structure** the primary focus for establishing and validating threshold standards is at the level of the award through the operation of a single examination board, supported by external examiners fulfilling their traditional role...the board will be responsible for both the standards in the units/modules and the award (HEQC, 1995b: 42).

The changes that had been made at the universities began to emerge during the unstructured interviews. As a respondent at the University of West of England explained:

> A module can be taken by maybe four awards, which may have co-requisite activities. So what ties them academically in place are very many more strings or constraints which have to be catered for, and organised, and managed and thought being given to who manages and how it is managed.

A critical issue for this respondent was that to attempt to manage this within an existing 'culture and existing framework' (i.e. that of a traditional linear course) has a 'very low survival expectation!' In his opinion it was a 'matter of switching an institution over to a rather different way'. The transformation would include changes in the structures and the practice for student assessment through, as one person described it, 'an appropriate system of Boards'. At, for example the University of Sunderland, these were described as:

> Boards which will deal with matters of assessment, and Boards which will deal with, if you like 'studies' matters - the ongoing delivery and development of the programme. We have Module Studies Boards, Module Assessment Boards, Programme Studies Boards and Programme Assessment Boards...You really need to give some thought to what sort of Module Boards you need. [For example] are they going to be subject

> based?...So your Board structure and its composition module-wise and programme-wise, is quite a key element in all this, and if you don't get it right the rest doesn't follow.

Another respondent at Sunderland explained that the student marks from the Module Assessment Boards go forward to the Programme Assessment Boards. These Programme Boards could not alter the marks, but this Board made the awards.

During the discussions in the unstructured interviews respondents commonly mentioned two important issues relating to the changes in assessment practice. One was the changing role of the external examiner and, for example the demise of the 'viva'. The second was the absolute necessity for a reliable computerised tracking system to capture student marks at the level of the module.

The practice described by the respondents above is consistent with that described by the HEQC (1997: 25):

> Modular curriculum frameworks may retain the single examination board for specific programme/award (e.g. where standards are regulated by professional bodies) but, in general, such boards have been replaced by a two stage process for regulating standards. During the first stage, module marks are considered, moderated and confirmed in a formally constituted committee e.g. subject, field or module assessment panel/board. The process involves active consideration of module assessment statistics and the moderation of module marks. The process is monitored and advised by subject external examiners. The second stage of the process is undertaken within an examination or award board which is responsible for the award.

5.2.4 Modules and notional study time

In Table 5.2 the full-time academic year, module sizes in notional hours, sizes permitted and the credit values across the five universities are compared. This information has been mainly analysed by using another of the family of frameworks identified by the HEQC (1997). To recap these frameworks are for: curriculum (as discussed earlier); level; award; student assessment; and quality management. The sixth is the credit framework, and from the perspective of this framework, several differences across the universities emerge.

Table 5.2: Modules, credit and notional study hours

	Sunderland	Napier	Manchester Metropolitan	University of the West of England	Wolverhampton
Full-time year: hours	900 30 wks x 30 hrs	1200 30 wks x 40 hrs	1200 30 wks x 40 hrs	1080 30 wks x 36 hrs	1200 30 wks x 40 hrs
Module size: hours[1]	150	80 (1991) 150 (1996)	100, 200, 300	180	150
Sizes permitted	0.25, 0.5, 1.0, 2.0	Up to max. of 3.0 (1991) 1.0, 0.5 in exceptional cases (1996)	10, 20, 30 credit units	0.5, 1.0, 1.5,2.0, and 3.0	1.0 2.0 for project
Number of modules	3/semester	15/year (1991) 4/semester (1996)	variable in different stages (levels) e.g. 12 x 10 credit	3/semester	4/semester
Credit value single module	20	8 (1991) 15 (1996)	10, 20, 30	20	15

[1] Notional hours of study

Firstly, whilst three of the Universities had a full-time year equivalent to 1200 notional hours at the University of Sunderland it was 900 and at the University of the West of England 1080 notional hours. Secondly, there were different values for 'single' (standard) modules ranging from 180 hours to 80 hours. Thirdly, there were variations in the sizes (i.e. fractions or multiples) of modules that each institution permitted, and lastly that there were differences in the credit values associated with the modules. The significance of these differences is discussed below.

Before making comparisons across the institutions it is important to discuss two concepts. The first is 'credit' which can be fairly simply described as:

> An educational currency which provides a measure of the quantity and level of learning determined through the achievement of intended learning objectives or outcomes. Credit is making learning portable by giving students flexibility over where and what they learn...All unit- and module-based curriculum framework operate a type of credit framework in so far as the modules/units which are passed accumulate towards an award (HEQC, 1997: 14)

The simplicity of the description of the principle of credit is often overshadowed by the complexity that is introduced when, as Allen and Layer (1995: 27) put it, 'modularity and credit get confused and conflated as institutions struggle to introduce and develop them'.

The second important concept is that of 'notional learning time' which is defined as:

> The average time required for a learner of average ability to attain the specific learning objectives or outcomes i.e. the nominal hours a full-time student is expected to devote to studying a one-year full-time equivalent programme. In reality, notional time is a theoretical construct to ensure that curriculum designers consider, in general terms, the effort required by students to attain the learning objectives or outcomes of a module or, by aggregation, a programme. Notional learning time therefore provides an aid to the calibration and equilibration of student learning effort across modules (HEQC, 1997:15).

The three universities where the full-time academic year is equated with 1200 notional hours of learning appear, in common with a reported 90% of UK institutions (HEQC, 1994a; 1995), to have adopted the former CNAA scheme.

This 'impositional credit scheme'[8] is based on a three-year honours degree programme with 120 credits per year and an overall value of 360 credits. The total numerical value can then be easily partitioned to accommodate modules, which are usually treated as an equal part of the total course, although multiples of the standard module may be allowed. So, for example, at Wolverhampton University there were four modules per semester and a single module had a value of 15 credits. At Manchester Metropolitan University, which was unit-based, a variable number of units of different sizes were permitted at different stages of the programme on the basis of 100 notional hours attracting 10 credits.

Whilst, for example, at Napier University respondents described the university concept of 'Notional Efficient Student Hours (NESH)', which might seem to be more consistent with the principles of 'compositional' credit, the underlying mechanism for apportioning credit still seemed to stem from using the full-time year as a starting point. One significant difference between impositional and compositional credit being that whilst the former uses the degree itself as the starting point for the definition of the credit unit the latter begins from student learning activity. It could be suggested that in practice there was a blurring of the boundaries between impositional and compositional credit. For example, the administrative policies may have been based on taking the existing academic year as a starting point for making decisions about credit values whereas at the level of the module the curriculum design process may have been based more on the principles of compositional credit. However, this notion would need to be substantiated with further research.

As stated earlier at the University of the West of England the full-time academic year was based on 1080 hours, with three modules per semester,

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[8] Three approaches to credit have been recognised: **'impositional'** credit which superimposes a *numerical partition* on a greater whole and usually employ some general concept of *workload*. **'Compositional'** credit is described in dimensions of *notional time*- usually a *learning hour* and from this *composes* a credit tariff for every constituent learning experience in a programme. The best example of this is the Carnegie credit hour used in the United States. With credit as **'competence'** successful 'operational performance' is measured by fulfilment of *units of competence* and credit is aggregated towards an award which represents *competence* at a certain level (HEQC, 1994a: 122).

and a single module of 180 hours having a value of 20 credits. At the University of Sunderland it was 900 notional hours, with three modules per semester of 150 hours, and attracting 20 credits. In both these cases, although the full-time year was less than 1200 notional hours the modules were 'chunkier' in terms of their credit value.

The significance of the range in notional learning time is that 'credit tariffs' for a 120 credit per level framework range in value from 7.5 (Sunderland), through 9 (Wolverhampton) to 10 units of credit[9]. What this translates into is that it takes 7.5; 9, or 10 notional hours of study to gain one credit. The significance of this is highlighted in the extract below:

> Notional learning time is a theoretical construct...but this will not be understood by the public and employers. Differences in notional learning time and credit tariffs between institutions will be perceived by the public and employers as an issue of comparability. Specifically, notional learning time might be interpreted in a literal sense...for example, an institution which operates a 900 notional hour 'learning year'...might be represented (in the media) as having lower expectations of its students than an institution which operates a 1200 notional hour 'learning year' (HEQC, 1997:18)

One implication of notional hours not representing contact hours is that it should mark a shift away from traditional non-modular practice where the focus is on *teaching*. Notional hours on the other hand are linked to *learning* through the principle that the student is awarded credit for demonstrating achievement of learning (expressed either as objectives or learning outcomes). It follows therefore, that the notional hours will comprise a number of activities other than contact time, as shown below:

Sunderland (900 hour year)	Manchester Metropolitan (1200 hour year)	Wolverhampton (1200 hour year)
Module: Microbiology and Genetics - 20 credits (150 notional hours)	Module: Microbiology - 20 credits (200 notional hours)	Module: Cell Biology and Genetics - 15 credits (150 notional hours)
30 hours of lectures 12 three-hour laboratory sessions 2 hours of computer simulation 9 hours of data handling exercises (73 hours remaining)	30 hours of lectures 5 hours tutorial 20 hours practical 35 hours of guided self managed study 110 hours of independent activities	Weekly (13 weeks) 2 hours lectures 1 hour tutorial 3 hours practical at least 4 hours per week (min) private study

Making policy decisions about the size and length of modules also warrants very careful consideration because of the potential to undermine the principles of modularisation such as choice and flexibility. Some of the kinds of issues to be considered include, for example, whether all the modules will be of a standard length and how much variation (fractions or multiples of the standard) if any, to allow. A second factor is the time period for delivery, whether it will be equivalent to the academic year (long thin), or shorter, for example a semester (short fat). A third consideration is delivery that allows students from different attendance mode groups, for example both full- and part-time, to take the same module at the same time. These issues are highlighted in the following extract taken from the University of the West of England *'Undergraduate Modular Programme: rationale and description'* document:

> The permissive structure of the University's modular scheme allows module sizes of 0.5, 1.0 (single module: 180 notional hours), 1.5, 2.0, and 3.0;
>
> The modules may be a semester long or run through the year (except for 0.5 modules);
>
> The structure of an individual award must allow a combination which is based on six single modules in a highly flexible way. A structure which is based on four 1.5 modules

[9] Calculated by dividing the total notional hours for the year by the credit value e.g. 900/120 = 7.5

> is not permitted because it severely limits combinations with the standard six single module structure, thereby reducing flexibility;
>
> The length of modules has a considerable influence on the flexibility of a programme, and that there is an advantage in having a commonly used length for single modules whilst permitting exceptions based on academic grounds;
>
> Some modules should be taught 'long thin' (taught over a year) because where a subject requires period of maturation (e.g. Languages) benefit from 'long thin' delivery;
>
> The length of modules markedly affects student choice, for example, if students have a choice of six single modules from ten available then there is a free choice if all modules are taught 'long thin'. If these modules were taught 'short fat', within semesters then students may have to choose three modules from five in semester 1 and three from a further five in semester 2 and student choices then become restricted;
>
> The integration of part-time and full-time/sandwich provision is prevented when six modules are all delivered 'short fat'. Part-timers attending on a day release basis need to complete the study of three single modules per year and a semester based system of delivery would require two 'short fat' singles to be studied in one semester and one 'short fat' in the other semester;
>
> There are considerable advantages in adopting a length of one year for single modules and that will be the norm for the Undergraduate programme. The main structural features of the framework are as follows: single modules running through the year; 0.5 modules of semester length offered in pairs either concurrently or consecutively; and double modules running through the year (exceptional use).

The far-reaching consequences of making decisions about the size of modules to be permitted in a modular scheme were powerfully described at Napier University. In 1991 the University took policy decisions whereby it was determined that the minimum module size would correspond to 1/15th of a full time student's work, would attract 8 credits, and be defined as 80 notional efficient student hours (NESH). The maximum module size, with the exception of research projects, would be 240 hours.

However, after implementation it was found that the range of module sizes led to many problems in practice. Therefore, in 1996 a Committee which conducted an extensive review of the modular scheme made the following recommendations: to introduce a standard size of module of 15 credits; to develop normal full-time programmes of four standard-sized modules per semester; to only allow one standard-sized module to be substituted by two half modules in exceptional circumstances; to deliver and examine all modules within a single semester; and to introduce flexibility so that projects, dissertations and supervised work experience could be larger than the standard module. As one senior manager from the University explained:

> I suppose that the biggest mistake that we made was to allow too greater flexibility in the size of modules. We allowed modules of 80, 120, 160, 200, and 240, in terms of NESH's. And its a bit like building a house, if you've got lots of different sizes of bricks, then it becomes much bigger design problem to put it together. And if you are hoping to share your design with other houses afterwards an even bigger problem occurs! So that was definitely a mistake. The reason we did it was to try and keep people on board in terms of maintaining the best from the past. An issue there is that in fact when we introduced the scheme in 1992 it was introduced with the current courses modularised. And then new courses used that framework. And given that design, the course influence on the design of modules was much greater than was desirable. So, for example, the hoped for sharing of modules, occurred less often than could have been the case. So in other words we were in a half way house...A wide-ranging review, of the scheme came up with 10 recommendations. One was not surprisingly to have a fixed size of module. We have chosen, in terms of NESH's 150 NESH for that. So there will be 4 modules per semester and 8 modules per year for a student in full-time study. I think this at a stroke will simplify very considerably the houses we build! And certainly the whole report has been widely welcomed throughout the university.

A second respondent also talked about these changes and the benefit of increasing the module size:

> One of the changes that we're coming on to shortly is that we are making them 15 credit modules. Rather than the 8, 12, 16 variable [credit] size module. It's going to be a standard sized 15-credit module. And if that is done within a semester it is going to be a fairly chunky module, which should allow members of staff sufficient time, and students to develop deeper learning.

Furthermore, an unstructured interview revealed at Napier revealed that the Modular Review Committee had grappled with the module size issue:

> One issue that we did debate was what was the right number of modules for a full-time student per semester? And I must say we got a fair degree of external evidence that even 4 might be too many. There were very strong arguments that 3 modules per semester for a full-time student might be the correct number to adopt, if we had 3 modules they would be longer modules, 20 credit modules rather than 15. We would keep that fixed. We've got the study time more or less right now. The issue is whether people can carry 4 different topics at the same time. Whether 3 or 4 is the right number. However, we looked at our survey of academic staff very carefully on that. And basically the evidence we got from our survey was that 4 modules per semester was the most popular, 5 modules per semester being second most popular and 3 modules per semester being third most popular. So we thought that to actually go to 3 would have really been against the evidence we had collected from the university.

A respondent from another university also gave a strong message in his interview about the pitfalls of decisions about module size. In his response he also touched on an issue discussed earlier in this chapter, that of the starting point for designing modules:

> I think that this institution in particular tried to do it too quickly, much too quickly. You can try to go about it two ways I think, for when they did it at [another institution] they actually agreed a structure at university level. And they were very careful about the choice and size of an individual module and then everybody followed that prescription, and everybody fitted into that model. And one of the ideas was that you would then get

> flexibility. That if everybody's module size was the same or similar, every degree programme would have a similar number of credits and use a similar number of modules and that would allow maximum flexibility in the use of a module by a range of programmes. We didn't have that approach here, we launched modularisation on the back of an existing degree scheme as a model on which to develop modularisation. And so as a result of that we came out with 120 credits at each level, 1st year, 2nd year and 3rd year, and there were 6 modules, so 20 credit modules. And sometimes that was too big. So we then got into modules and half modules. So we got into it by a kind of evolutionary, ongoing process. Rather than by thinking it out in advance as to what we wanted to do.

The final factor for consideration to be discussed in this chapter is that of module types. Apart from exceptions in very unique circumstances, modules form part of programme(s) which lead to specific award(s). Each of the universities visited distinguished between various fundamental types of modules which might be combined in different ways in different programmes. For example, one programme might only allow a student to study compulsory modules, whilst another would allow compulsory and some optional modules. Individual modules might also be classified differently by different programmes so that a core module for one programme might be an option for another, and an elective for a third programme. An insight into the different types of module is given, for example, in the following extract from the 'Guide to the Modular Credit Scheme' from the University of Sunderland:

> **Compulsory/ core:** Module required of all students taking a particular programme;
> **Designated:** Module required of all students following a particular route within a programme;
> **Optional:** One of a group of modules from which a choice must be made within a particular programme or route;
> **Elective:** Module undertaken as a free choice which may be outside the primary area of study
> **Pre-requisite**[10]**:** Module which students are required to pass, or be credited with, prior to proceeding to a specific module on a specific programme (usually at a lower level than the module for which it is a pre-requisite). Exceptionally the requirement may be only to have studied the module;
> **Co-requisite:** Module which students are required to take in conjunction with other specific module(s) on a specific programme (normally at the same level as the module for which it is a co-requisite);
> **Project/Dissertation**: Supervised individual or group-based activity or work experience.

[10] The careful wording of the definition for the pre-requisite module is important because the student may be awarded credit for the pre-requisite learning through mechanisms for accrediting prior learning and not 'taught learning'

5.2.5 a summary of the key issues to emerge from an analysis of the documents

Therefore, an analysis of some of the documents provided by the five universities, coupled with supporting evidence from the unstructured interviews revealed key issues which included:

- The cardinal importance of establishing a framework;
- The characteristics of a modular structure and scheme and a CAT scheme;
- Some of the definitive features of the curriculum framework at each of the five universities;
- The general adoption of a mixed economy approach at the five universities;
- The variety of different types of programme that may be supported in a mixed economy approach to modularisation;
- Some of the key considerations for management and decision-making in a modular education;
- The different approaches to module size, credit value and notional study hours at the five universities and the implications of making decisions about these attributes;
- The different types of module that may be offered and the relationship between them.

The important themes, and their implications for ML Sultan Technikon, that emerged from a consideration of both the issues summarised above, and the issues raised by the respondents, are discussed in Chapter 6.

Chapter 6: Emergent themes and implications for M L Sultan Technikon

6.1 Introduction

In Chapters 1, 3 and 4 the purpose and rationale for this study was described and several cardinal characteristics were identified. In essence this was a small-scale, qualitative survey of mostly senior academics in five carefully chosen universities in Britain. The approach to the conduct of the study, and in particular the nature of the data collection and analysis was influenced by the naturalistic (or hermeneutic) paradigm of inquiry. Thus the study sought to reveal a plurality of interpretations, opinions, approaches to and experiences of, modularisation, primarily from the academic staff in departments or schools offering qualifications (awards) in Biological Sciences.

The responses of the group of academics who participated in the study are supported by documents provided by the universities and further strengthened by the literature. Chapter 4 explained the process by which data from the three sources were analysed. From these sources there are several common themes that emerge that are shared by academics across different institutions. Whilst this type of study does not lead to broad generalisations it has illuminated the many complex and interrelated issues pertinent to modularisation.

In this chapter the major themes to emerge are revisited and their implications are explored. In the first sections the themes are summarised and a possible model for their integration is suggested. In the final section the implications for developing a credit-based modular system in the context of M L Sultan Technikon are explored.

6.2 Emergent themes

Going modular

One of the main themes to emerge was that the development of credit-based and modular systems was almost ubiquitous throughout the higher education system in Britain. As one respondent expressed it modularisation was an 'unstoppable movement [and] 90% of UK Higher Education institutions are now modular'. This assertion is strongly supported in the literature where Watson (1996: 6) comments that the backdrop to the publication of the HEQC report *Choosing to Change* (1994 a, b &c) was 'nearly three-quarters of UK higher education institutions owning up to modular practice or ambitions of some sort'. In accord with this Allen and Layer (1995: 13) predicted that there would be 'a virtually universal credit-based system by the end of the [20th] century'.

Conceptualisation, perceptions and terminology

The approach adopted in this study was grounded in an assumption that there are multiple interpretations of modularisation. It was also assumed that an intrinsic element of the various interpretations would be different conceptions and uses of terminology relevant to modularity. As Chapter 2 explained these assumptions were affirmed by the literature. Even such an august body as the Higher Education Quality Council, for example, was reluctant to offer definitions or impose conformity on the use of terms in circumstances which were still evolving and about which there was much conceptual debate (HEQC, 1994a). However, notwithstanding the potential pitfalls of attempting to impose conformity, by drawing on the experience of conducting this study, there does seem to be merit in fostering the development of a shared understanding of the terminology. This could be particularly important within the context of a given institution or within a sector such as all the South African Technikons. Otherwise there is an inherent danger that academics may spend their time 'talking past each other' because they assume universal acceptance of the terminology.

In this study, whilst the terminology and its usage was not specifically researched, there was both a commonality of use and a sense of familiarity with the words and terms that respondents utilised in their descriptions and explanations. The study did seek to attempt to reveal the underlying differences in conceptualisation. What emerged was a common recognition of the curriculum of a modular programme as being organised differently from a traditional programme, particularly in the way that the modular curriculum was 'packaged' and delivered. The main differences that respondents specifically pinpointed were that in modular courses or programmes the 'delivery package' was small and discrete, with a shorter delivery time than the traditional subjects, and with assessment occurring within the delivery unit. These smaller packages were characterised by defined student learning hours and a credit value or rating. The distinctions between modular and traditional courses identified by the respondents are consistent with those included in the literature (for example, Walker, 1996).

The word package has been used deliberately in the section above because whilst there was a sense of commonality about there being discrete elements, two terms were used interchangeably as descriptors. Most respondents spoke about 'modules' and about 'units', often within the same sentence, conveying a sense that they were the same. However, one respondent pointed to a possible conceptual difference between modules and units and the two associated processes of modularisation and unitisation. The notion of a conceptual distinction is supported in the literature by, for example, the HEQC (1994a). Thus, the tendency by the majority of respondents to use the two terms as if they were synonymous may have had the effect of overshadowing potentially important ideological differences.

This could be interpreted as indicating that an institution (or faculty, school or department, depending on the scale of development) must be absolutely clear whether the intention is to *unitise* or to *modularise*. In other words it seems apparent that one key question to be asked by an institution poised to make changes is 'what approach will be adopted?'

The majority of respondents in this study were of the opinion that their conceptualisation of modularisation had not changed. However, one explanation for this stability might be that the study could not detect or track the shifts over time, this would only have been possible with a longitudinal study. Therefore, gradual changes might have occurred over the period of several years in which the respondents experience of modularisation had developed that were undetected by the respondents themselves. Whilst the concepts had apparently remained stable, opinions and perceptions, particularly connected with the claimed benefits of modularisation, had not. Their experiences had illuminated the difficulties, disadvantages and tensions that could potentially be created in the process of going modular.

Different approaches

The question posed in the section above, what approach will be adopted in the process of modularisation, leads into a consideration of the various options that an institution might select. From the perspective of the literature some different approaches were highlighted in Chapter 2. One of the possible approaches, related to the discussion above, was that an institution might choose to unitise by agreeing to offer students five or six 'units' a year, but not necessarily within a common term, trimester or semester structure. In some examples of practice these units are non-standardised segments, including conventional year-long elements (HEQC, 1994a). The apparent implication in the literature is that unitisation may not challenge the fundamental status quo of the course or programme. In other words, it could be interpreted as being what could variously be described as a mechanistic, technicist, or reductionist approach where the curriculum is simply divided into smaller segments.

The potential tension that could be created is between the structural and the philosophical considerations of going modular. The findings of this study seemed to indicate that, in terms of structure, the five universities had developed both modular and CAT schemes, characterised as being a 'mixed economy' approach. The study did not reveal to what extent the genesis of this mixed economy approach had been 'conversion' or 'creation'. However, based on the evidence in the documentation, when compared with the

characteristics identified in the literature, each of the five universities in this study could be said to have what Walker (1994) has categorised as a Mark II[1] system across the universities as a whole.

Educational philosophy and key principles

In various ways in both defining and discussing modularisation the respondents highlighted the key principles of modularisation as being: increased student choice and flexibility; the interrelationship between the delivery of the module and the assessment; and the accumulation and transfer of credit. These principles are consistent with the three that, for instance Watson (1989) regards as being fundamental to the educational philosophy of the modular course (these principles are discussed in Chapters 2 and 5). In essence these principles imply that students within a modular scheme will have choices at several levels: such as which of the modules to choose to study from within the main discipline field; of modules from other discipline fields or qualifications; and of the type of qualification for which to aim. The principle of assessment is that modules are assessed during the delivery of the module, that a record of the assessment is made, and that, by the end of the module, all the academic work and the assessment will be completed. In other words that assessment, as an integral part of the module, is an integral part of learning. With the principle of credit accumulation, on attainment of a pass in each module, the student is awarded credit which contributes towards the total required for a particular award.

Whilst these three principles are regarded as being fundamental to modularity it is pertinent to reiterate the main points around modularity and credit raised by Allen and Layer (1995). As Chapter 2 explained, according to Allen and

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[1] A Mark I system is characterised by students engaged in taught modules on largely prescribed pathways within a common set of assessment regulations. Mark II introduces the accreditation of prior learning and credit accumulation and transfer, encourages part-time learning opportunities, experiments with a wider range of learning methods (self-supported study, learning contracts, peer-tutoring and so on) and provides inter- and extra-disciplinary modules. Mark III (which no British university has yet perfected) offers a sophisticated credit arrangement for prior learning and experience...designs joint programmes with other educational institutions and with industry and commerce, experiments with a wide range of assessment and recording methods (work-based profiles, portfolios - and so on) and assesses on demand in relation to contracted learning outcomes (Walker, 1994: 26).

Layer modularity assumes formal learning is delivered in modules that are self-contained in terms of learning outcomes and assessment. Whereas, credit, together with accumulation and transfer thereof, assumes that: learning can occur anywhere; be measured and given a credit value; that credits can be moved from one place to another, and that a tariff acts as a currency and ensures that credit is portable. The crucial reason behind making such a distinction is that the principles of modularity and credit are frequently confused and conflated when institutions grapple with the introduction of either or both.

It is important that, if an institution has taken a strategic decision to introduce a *credit-based modular scheme*, consideration is given to both the sets of principles underpinning modularity and those fundamental to credit. This then implies that the minimal approach to be adopted would have to be consistent with the characteristics of a Mark II system (as defined earlier). In other words the policies and procedures developed would have to ensure that the principles of both modularity and credit were given substance when translated into practice.

According to Watson (1996) the counter-arguments to the development of a modular system that promotes the principles of choice, flexibility, and transfer and exchange of credit, focus on reasons such as the lack of academic coherence and progression, and logistical constraints. The tension between the introduction of a modular scheme and the academic cohesion of the programme was one of the common lessons about curriculum development to emerge from this study. There appears to be an inherent danger that an institution might aspire to the development of a system based on choice, flexibility and credit transfer. However, in practice a system could be introduced where students are, in keeping with the characteristics of a the Mark I system described by Walker (1994: 26), 'engaged in taught modules on largely prescribed pathways within common sets of assessment regulations'. This would correspond with the critical reflection by Roper (1994: 147) on the Mark I system which was highlighted in Chapter 2. Roper asserts that in a

Mark I the delivery structures and rules 'matter a very great deal, almost to the exclusion of the overall aims and philosophy'.

Recognition of this potential pitfall helps to highlight some of the apparent underlying concerns expressed by Watson (1996: 6) in his comment that 'the onward progress of modularity has not, however, invariably kept faith with these principles'. Another facet of this disquiet was that Watson had previously stressed that although modularity might require a 'rebalancing of resources' it should not be seen as a 'cost-cutting exercise' (Watson, 1989 & 1996: 6). This links very strongly with the 'managerial reasons' for modularisation identified by Allen and Layer (1995). Interestingly, respondents in this study did give valuable insights into the educational principles or reasons for modularisation. However, there was a stronger tendency for respondents to allow discussions of the managerial reasons for modularity to dominate those of the educational principles, thus, giving substance to the concern expressed by Watson. The deeper implications of this are discussed in more detail below.

6.3 Why modularise?

Driving forces

Together with establishing a sense of the conceptualisation of modularity the study sought to uncover some of the characteristics of the nature of the process. One aspect of this was to explore the underlying reasons, circumstances or pressures that propelled the five universities towards modularisation. The recurrent theme to emerge in views shared by respondents, and supported by the literature, was that the development of credit-based modular systems or frameworks was the only possible route for the realisation of government policy for a mass education system (Allen and Layer, 1995; Jackson, 1996a; Walker, 1996). In line with this drive for a shift from an élite to a mass education system respondents identified several specific motivators for this remarkable growth. One was that of a national push for the development of Credit Accumulation and Transfer Schemes. Another was that the higher education system in the United States, as an

exemplar of a mass system, had become a kind of shrine for various 'fact-finding tours'. This was typified by the descriptions given by respondents of the visit to the US by representatives from Napier University. The other important driving forces in the change to modularity that were identified by respondents included the pressure for universities to increase student numbers, to broaden access, to increase efficiency and the changes in funding mechanisms.

Chapter 5 explained that, according to Allen and Layer (1995), these reasons for modularisation could be categorised into two groups: educational and managerial. It is most conspicuous that, whilst the literature may present a balanced discussion of the two, the respondents in the study tended to place an emphasis on the reasons that fall into the managerial group. This finding is substantiated by Allen and Layer, who explain that many staff perceive 'hidden agendas sponsored by institutional managers and political agencies' (Allen and Layer, 1995: 13). Jackson (1996a) adds weight to this argument and explains that many institutions highlight the desire to improve choice and flexibility but many academics consider that the primary motivation for modularity is economic, social and market-driven rather than educational. This corresponds with the shift, explained in Chapter 2, from 'intrinsic' to 'extrinsic' considerations (Squires, 1986) and the dawn of Phase 2 modularity (Waterhouse, 1986 cited in Watson, 1989).

It is interesting that, as Allen and Layer (1995: 13) assert, the scenarios of managerial and educational driving forces are not 'good and evil', or 'mutually exclusive'. They go on to explain that it is perfectly feasible that a movement devoted to, and able to deliver a better framework for students might also be a tool for those interested in the rationalisation of resources. However, in accepting this argument, issues such as 'who drives the process' and 'who owns the process' are raised.

Who drives the process? Who owns the process?

Another important aspect of the process of modularity to emerge was the issue of whether the change had been imposed from the top or had been

participative. Closely related to this issue is the necessity to clearly define the roles of the key players that are needed for the process to unfold.

At Napier University it emerged that the decision to 'go modular' had been driven by senior management staff. One respondent explained that 'it was decided that Napier should adopt a modular scheme, so in that sense it was imposed upon the academic staff'. However, a senior member of staff offered very insightful reflection and critique of the process. One of the key problems during implementation was that, for several reasons, time had been a limiting factor. Another feature was that with senior staff 'driving forward development' ownership of the process, at the 'detail level in academia' had been difficult to achieve. The change to a modular scheme had, therefore, not been without difficulties, and in response the senior management at the university instigated a 'wide-ranging review'.

At the University of the West of England, in an unstructured interview, a respondent also explained the process as follows:

> The university decided that modularisation was going to come in, there was a small committee that established the initial Common Assessment Regulations, and that [Committee] included one of the Assistant Vice-Chancellors. Faculties then developed their modular programmes on the basis of these Common Assessment Regulations'

In contrast, at the University of Wolverhampton, one respondent commented that the Department of Biological Sciences had been a driving force. He stated that 'after modularisation had been adopted for BSc Biological Sciences it gradually spread throughout the school and university - so in a sense it was a response to our initiative'.

From the perceptions shared by respondents the locus for the directive for change, 'top-down or bottom-up', and the extent to which collaboration from the academic staff is encouraged, both emerge as key challenges for institutions to consider. The point about ownership of the process is highlighted by, among others, Crossley *et al* (1993: 340). They present a strong argument that 'mutually acceptable change' is more likely if the implementation is carried out with the full participation of academic staff, and if

a group of senior academic staff take ownership of the process and determine the system of modularisation. The importance of collaboration is likewise emphasised by Gregg (1996: 11) who notes that the process of transition to modularity is inhibited when academics feel that it has been 'unilaterally imposed'.

It is evident that one of the critical stages in the shift to modularity is, therefore to establish open debate about the process in order to foster a shared sense of ownership across the institution. It will be of paramount import that the institution avoids what Fullan and Miles (1992, cited in Fullan, 1993: 51) term the 'faulty maps of change' that are 'prevalent in both top-down and bottom-up theories' of change. It can be argued that a crucial facet will be for the institution to promote leadership (as oppose to management) in the process of change (Schwahn and Spady, 1998).

One natural progression from this could be that the institution approaches the change by nurturing three key capacities identified as integral characteristics of leadership: leader as designer; leader as steward; and leader as teacher in a 'Learning Organisation' (Senge, 1990). Leadership has been shown by Nias *et al* (1992, cited in Fullan, 1993: 65) to be one of the four key conditions that can facilitate curriculum development. The three other conditions were: shared institutional values; organisational structures; and resources such as 'commitment, time, people and materials'.

So, why modularise?

In the preceding sections a number of critical issues that emerged from the study have been discussed. Thus, issues such as the approach to be adopted, the underpinning educational principles, the tension created by an emphasis on managerial reasons for modularity and a flavour of the external pressures have been addressed from an independent perspective. However, in the process of conducting the study the sense of the complexity and the interrelated nature of the issues became compelling. Several of the respondents gave very forceful pointers to what seemed to be a central issue in this complexity. Each, in their own way, expressed the opinion that it was

critical for an institution to consider the question 'why modularise?' Four reflective comments, which particularly highlight the issue, are given below:

> I think you have to start with asking yourselves 'Why you want to modularise the curriculum anyway?', because you must have reasons for wanting to do it. Most [institutions] have decided that that is what to do. Our reasons are... educational. We want to be able to offer students the programmes that **they** genuinely want...packages that they want to pick rather than packages that have been picked for them, either by exam boards or [university] structures...on the assumption that there is no course, no coherent course that exists that's exactly, in every sense, what a student wants.

> How much is [it] a motivating factor to give students choice and flexibility? Because that was a fairly strong motivator from our point of view, but it may be less important for you and that's something you need to think about.

> Take the question why modularise? When this institution began the process of modularisation, it didn't really get a message across as to why? Why 'they' were doing it. Yes, so you would ask the question what's the purpose of modularisation, why you were doing this, and you basically got the answer back 'because it's the thing to do'...it was only *years* later that it came out that actually it was to anticipate the expansion in student numbers, and this was one of the perceived ways of doing it...in the process it would improve other things like access...but we [academic staff] never ever got that message. We were just doing it because that was 'the thing to do'; 'this is the way things are going'. So it might have been nice to have had the explanation as to why rather than 'oh well we are just doing it', so you decide to modularise!

> You have got to be very clear. The [institution] has got to be very clear, right at the beginning why they want to do it.

These responses, and the underlying concerns expressed, signal very clearly that not only is it essential for an institution to ask the question why modularise?; it is also vital that there is honesty and openness about the rationale that is presented to staff. In other words, that the 'hidden agendas, often for managerial reasons such as rationalisation or resource efficiency, are made explicit. One of the potential consequences of a lack of integrity as to the reasons for going modular are the tensions created between an educational and a managerial rationale.

6.4 Knowledge, academic disciplines and curriculum change

One of the very important educational reasons for adopting a modular approach is the opportunity afforded for curriculum change in its broadest sense. In this study the key issues relating to the curriculum that respondents emphasised were the danger of duplication of academic content and the difficulties of maintaining academic coherence, compared to a traditional course. These two issues are part of a more complex set of factors that

require consideration, and include the implication of modularity for knowledge and for academic disciplines.

Some of the main arguments against modularity are that it promotes commodification of knowledge, and trivialisation and technicist control of the curriculum. Furthermore, as Robertson (1996: 22) puts it 'the interaction of academic disciplines and modular frameworks can...produce a conflict of orientations towards learning in education'. He explains further:

> On the one hand, modular frameworks appear to undermine the integrity of courses by over-emphasising their detailed components at the expense of their vitalising whole. They can appear to produce a fragmentation of the learning experience, a purposeful separateness (Barnett, 1994) which raises awkward questions about the maintenance of intellectual quality. Put bluntly, students may gain familiarity with the state of the roads but have no idea of their place on the map. On the other hand, the shift from courses to modules can encourage students to build new intellectual connections, albeit confronting the sovereignty of the academic discipline and its exclusive culture, while encouraging students also with a broader exposure to a variety of higher education experiences (Scott, 1995).

The powerful message that emerges is that an institution must be cognisant of the potential tensions and must encourage open and constructive debate around the issues of 'knowledge' and academic 'disciplines'. It is apparent that a balance has to be achieved between maintaining existing disciplinary boundaries (a staff orientated focus) and promoting intellectual flexibility (a student orientated focus). Robertson (1996) reflectively comments that the tensions may 'resolve themselves under pressure from forces beyond higher education'. He draws on the conclusion by Gibbons *et al* (1994 cited in Robertson, 1996) that there is a shift from the production of knowledge based on institutionally-constructed academic disciplines towards forms of production based on the application of knowledge to specific problems in specific social, economic and commercial settings. This has been distinguished as 'Mode 1' and Mode 2' knowledge (Gibbons *et al*, 1994 cited in Robertson, 1996). It could be argued that by recognising and facilitating Mode 2 knowledge production universities would be more 'market-driven'. In this specific context modularity is attractive because the response time to market demands can be shortened.

The salient point here is that the extent to which curricular development may be stimulated is closely related to the approach that an institution adopts in going modular. Where the focus is only on modularising a single course or family of courses within a department, to encourage 'a little more access flexibility' and 'some managed choice' this is neither 'offensive to traditional academic values, nor does it undermine conventional patterns of loyalty such as to the department. In contrast, in an institutional or multi-faculty scheme where students have a moderately free choice of courses across the institution, inter-disciplinarity may be encouraged, however, across the institution disciplinary identities may be threatened (HEQC, 1994a: 317). Perhaps one of the potential threats would be the continuity of, what Becher (1989) has termed the 'academic tribes"[2] (Becher, 1989, cited for example, in Barnett, 1992).

If an institution embraces a shift in focus to promoting Mode 2 knowledge production the implications for developing transdisciplinarity and the subsequent erosion of traditional academic values are considerable. Chapter 2 introduced the notion that modularisation could be a massive adjustment in the approach that an institution adopts towards students and teaching because, it 'implies a paradigm shift in educational provision and curriculum design' (Duke, 1992). Furthermore, Duke explains the focus shifts from the institution to the individual student. Instead of the 'degree course', which the institution determines and which the student follows from the beginning of day one to the end of year three, there is the notion of educational opportunity from which the student chooses. In other words the locus of power changes towards learner empowerment. This is consistent with a shift towards the hermeneutic or critical paradigms of curriculum development as described in Chapter 1.

The main themes that have been highlighted in this section are consistent with four broad shifts in the transition from an élite to a mass education

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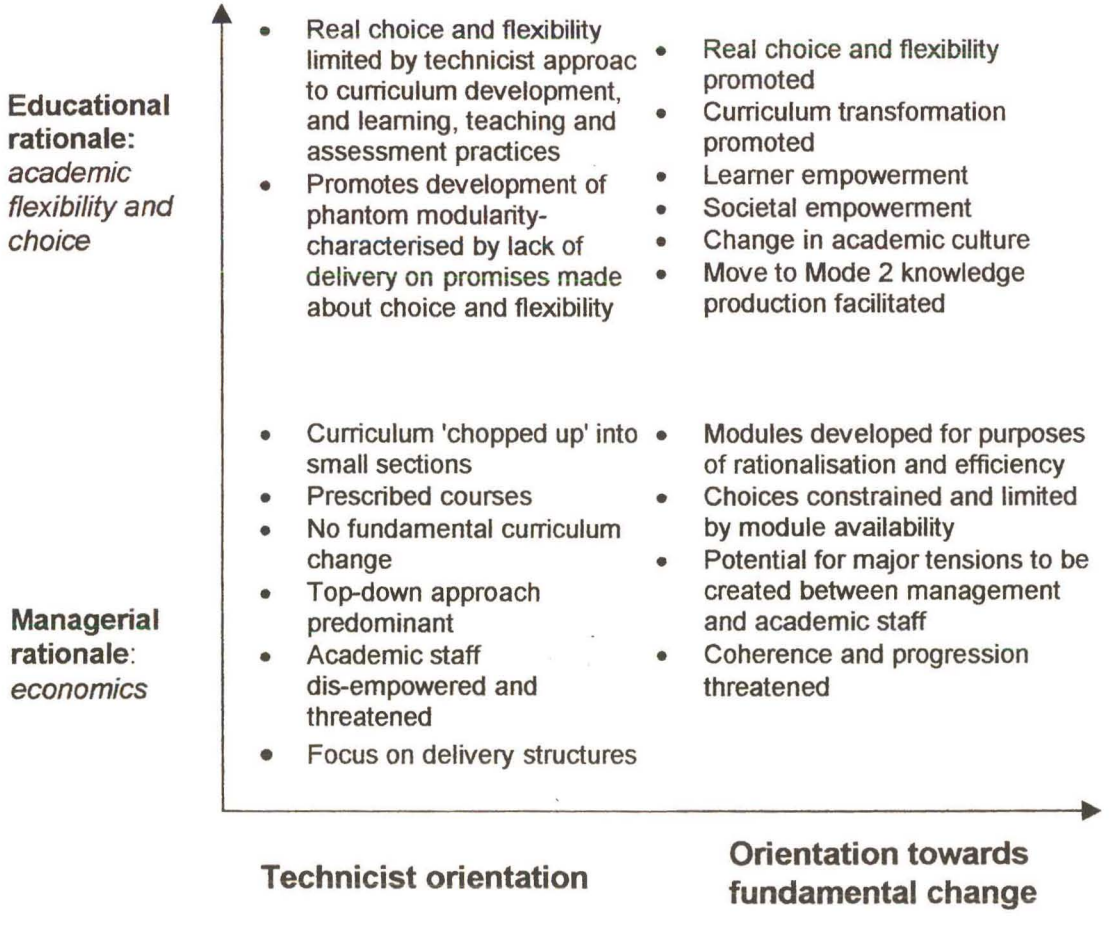
[2] Becher (1989) suggests that the academic community is a collection of many 'tribes' organised around discrete disciplines.

system described by Scott (1995) as being: courses to credits; departments to frameworks; subject-based teaching to student-centred learning; and knowledge to competence. The major effect of these shifts occurring as part of modularisation is that the institution must prepare for challenges to the traditional academic culture and power relations.

6.5 A possible model of relationships

The relationships between the themes that emerged in this study are highly complex, with decisions being taken with respect to one set of factors having implications and ramifications for others. Two of the considerations that have emerged as being cardinal are firstly, the rationale for adopting a modular approach, and secondly the underlying philosophy or ideology. An interpretation of the interrelationship between the two is presented in Figure 6.1 below.

Figure 6.1: Possible relationships between rationale for modularisation and underlying philosophies



The recommendation stemming from this model is that an institution must be very clear about the purpose for adopting a modular approach and the institutional educational philosophy underlying the change. Whilst it would be an obvious benefit for any institution to be able to predict or reveal the potential compromises and accommodate them in the process, there are caveats to heed. One of the most potent is given by Jackson (1996b: 112) who says:

> The process of modularising the curriculum is undoubtedly the most difficult change for any institution to manage because of its combined impact on academic practice, values and cultures

Jackson (1996b: 112) describes the process as a 'step change', and he asserts that regardless of institutional type or approach there is a similarity of experience that he terms the 'modularity learning curve'. Essentially there are four different approaches to the implementation of modularity:

Big Bang	simultaneous modularisation of all years of all programmes, often only 12 -18 month lead-in time.
Phased Introduction	modularisation of stages of programmes, e.g. all year 1, followed by all year 2
Incremental Growth	modularisation of each programme as it is validated (or revalidated)
Optional Approach	programme provider (department or faculty) adopts an approach and is required to complete process by a specific target date; approach adopted left to the programme provider

The shape of the learning curve will, according to Jackson (1996b: 112), vary according to the: lead in time (typically one to two years); the implementation strategy adopted by the institution (typically all provision modularised within one to three years); and the time taken for the learning cultures to adapt.

Many of the respondents in this study gave, as their piece of advice, powerful support to underscore the importance and relevance of these issues, as the following four statements reveal:

> [I have] many bits of advice, one would be to be very clear at the outset what are the reasons for going modular. Be sure those reasons are discussed [and] debated with all the staff. [You have] got to carry the staff with you, got to believe this is the right thing to do. Be very, very clear. Other [piece of advice] don't go totally modular, in other words don't lose the focus of academic disciplines, retain departments, modularise within those, for example chemistry taught by chemists. Where [universities have] gone too far [and have gone] university wide [there are] very many difficulties, tremendous problems, staff hate it for example, [names another university] have a huge modular system with no academic focus, now [they are] backtracking.

> Prepare the ground well, prepare in that sense of giving [the institution] time to get it right and...so...the units are written. We did it essentially over a year. I think you probably need two years to do it. From decision to end we did it in a year and the bulk of the work was done after Easter. There were huge philosophical discussions and nice box diagrams and all the rest of it...which looked lovely...and you kept re-visiting them and tinkering with them. Whereas the real hard work was left until too late.

> Make sure that ordinary members of staff are behind you and do not feel that the system is being imposed upon them without regard to their own views.

> Get as much advice as you can in advance. But I suppose the biggest piece of advice would be to not to just do what we did and go straight into it in a relatively short period of time, for everything. I would have thought that a pilot would have been an excellent way of going about things, if you can afford the time...I feel by doing something on a small scale, but nevertheless a serious scale, as a pilot, you would have got enough of the bad things out of the system without making staff so disillusioned about the way it was done. It means that you could positively look at it from a significant group of staff over a period of time and tell them that they are going to make a whole lot of mistakes, but [the] whole point of the process is to do a pilot and get things better for the next stage, then it will be much more of a positive experience. And I think [that] if you speak to the staff here they will tell you that it has been a mistake, but it was a necessary mistake at the time. We couldn't have afforded to get left behind but why not make use of all the experience of other people and try and make a better job of it.

6.6 Implications

The findings of this study have clearly highlighted the following major propositions for consideration:

- Modularity can be accepted as being a vehicle for transformed curriculum delivery

- The concepts of modularity and credit are founded on sets of principles

- There are educational and managerial reasons for going modular and an institution needs to strike a balance between the two and to make its intentions explicit

- A shift to modularity requires significant commitment to a change in academic culture and practice

- The change should foster a reconceptualisation of the traditional notions of disciplines and knowledge production

- Allowing sufficient time for change to be planned and implemented is a major factor and determinant of success

The purpose of identifying the propositions given above is to highlight the critical issues for consideration, although as a catalogue they are not exhaustive. It has been stated throughout that the purpose of this study was not to seek a blueprint for modularisation. However, in the process of gathering, analysing and interpreting the data highly valuable insights into the process of modularisation have been revealed by both the respondents and the literature. In the next section the relevance of this study to M L Sultan Technikon specifically, and the Technikon sector in general, is discussed.

6.7 Implications for M L Sultan Technikon

The intention behind this study was to inform decision-making in the Department of Biological Sciences at M L Sultan Technikon to enable recommendations for policy development and the implementation of modularisation to be made. To fulfil this goal the field-visits focussed on the appropriate departments, faculties or schools in the five universities that participated in the study. It is interesting to note that the findings of a study conducted by Gregg (1996: 13) led her to comment that 'the scientists and the mathematicians exhibited less resistance to modularisation than their colleagues in the arts and vocational subjects'. The focus of this study was purposefully skewed towards science in general and Biological Sciences specifically. However, as Gregg goes on to explain, certain concerns echoed

across all the institutions and disciplines that were part of her study. In this light it could be stated that the findings of this study might have relevance for a wider audience within the Technikon and beyond. Arguably the significance of this study lies in what could be described as being 'three A's': application; adaptation; and advocacy.

One underlying purpose of the study was to identify the principles of modularisation and to seek support and substantive evidence for these principles from the respondents. Since principles are context-neutral, once they have been identified they can be applied in M L Sultan Technikon. However, the study did not seek a template or blueprint that could be imported. Therefore, based on the findings of this study in the process of decision-making for policy formulation and implementation the principles must be adapted. It will be essential to ensure that the principles are not lost or discarded, but that they are adapted to conform to meet the specific needs of the context of M L Sultan Technikon. The important contextual factors to be considered will include the national goals for higher education, the internal (local) and external (national) legislative and policy environment, the prevailing institutional culture, and the resources available. These were discussed in general terms in Chapter 1.

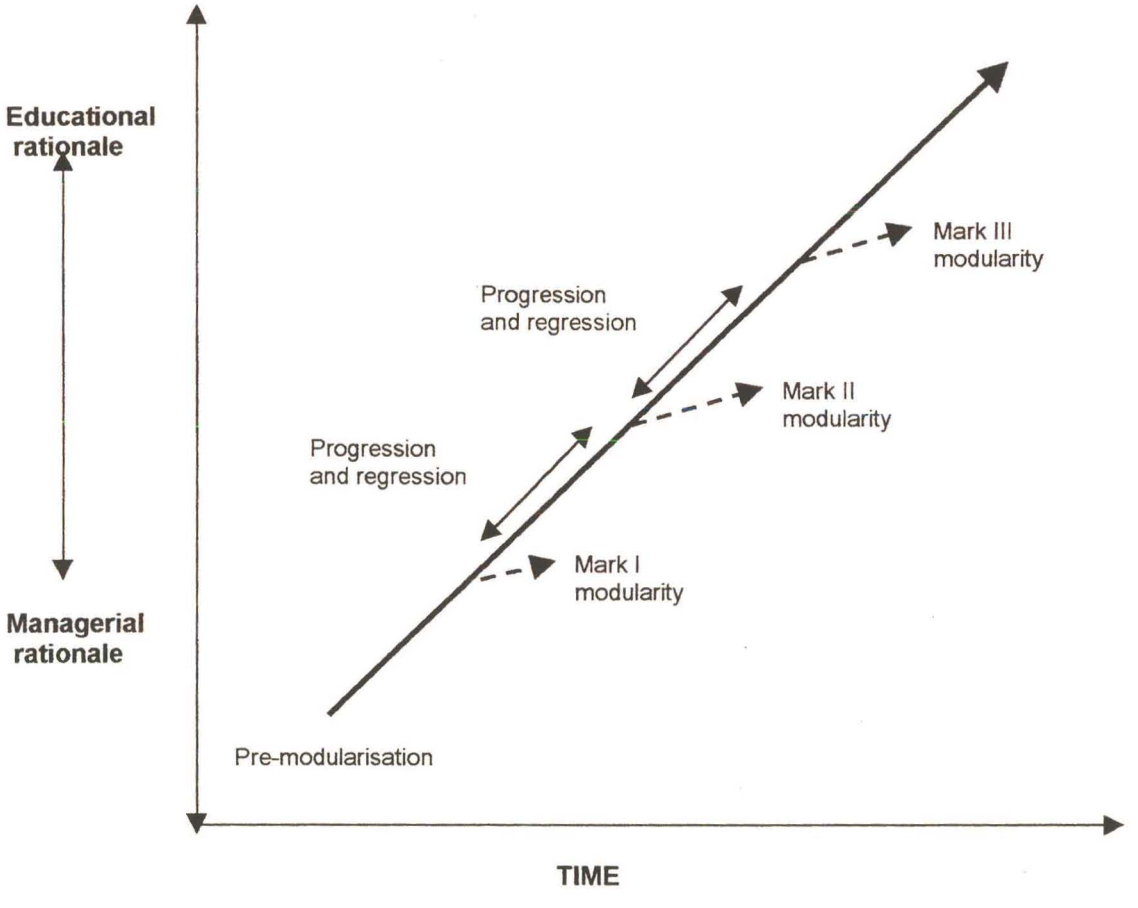
Perhaps the most significant role of the findings of this study is in advocacy of the principles, processes and practice to enable M L Sultan to, as one respondent put it, 'see [modularisation] in a more visionary way'. Arguably, one of the strongest motivators for an institution to adopt a visionary approach should be to avoid the inherent costs and trauma of making mistakes. A substantive message that has emerged from this study is the importance of asking questions. Put in very simple terms these would include:

- Where do we want to go with modularisation?
- Why?
- How will we get there?
- Who will be involved in the process?

- What do we need to facilitate the process?
- How long will it take?

These simple questions are undoubtedly very complex in reality, and some of the complexities and the implications of making various choices have been highlighted in this study. The model below (Figure 6.2) attempts to take the ideas expressed in Figure 6.1 further by outlining a number of possible scenarios for the dynamic process of developing a credit-based modular system that aspires to address the goals and imperatives set in the national policy environment:

FIGURE 6.2: a model for the possible trajectory of the development of credit-based modularisation



The trajectory for curriculum transformation and fundamental change

The trajectory represents the pathway towards curriculum transformation and fundamental educational change. The destination of the trajectory represents the attainment of a number of goals that, arguably when combined, achieve change. One of these goals would be for the implementation of Mark III modularity. The other goals that would contribute to this would include: mass access to education; the promotion of Mode 2 knowledge production, as discussed earlier; the implementation of outcomes-based education and training; curriculum development as a stake-holder participative process; and becoming a learning organisation as described by Senge (1990). In other words the trajectory leads to the achievement of the national goals and imperatives for higher education in South Africa outlined in Chapter 1.

However, as the issues and considerations that have emerged from the findings of this study, and the literature have shown, the path of the trajectory is not smooth and there are potential points along the way where the process may become arrested or may regress. Some of the possibilities are discussed below. This discussion draws together, in particular, the typology of the Mark I-III systems discussed by Walker (1994), the educational and managerial rationales distinguished by Allen and Layer (1995), and the notion of leadership (Schwahn and Spady, 1998; Nias *et al*, 1992 cited in Fullan 1993). It also attempts to reflect the implications of acceptance or rejection of the propositions highlighted in section 6.6 of this Chapter.

Scenario One: A combination of Mark I Modularity with an educational rationale and an existing style of management

In this scenario, modularity at M L Sultan would be characterised by students with 'taught' modules combined into largely prescribed pathways. Each individual department or faculty could modularise the learning programmes within a common set of assessment regulations. There would be little stimulus for dissolving the existing barriers between academic disciplines and therefore, little or no development of an interdisciplinary approach. There

would be little impetus for transformation of traditional patterns of teaching, learning and assessment, and curriculum change.

Scenario Two: A combination of Mark II Modularity, with an educational rationale and a shift in management practices

In an aspiration to develop Mark II modularity M L Sultan would promote the development of accreditation of prior learning, credit accumulation and transfer and would develop new approaches to teaching, learning and assessment.

Scenario Three: A combination of Mark III Modularity, with an educational rationale and academic leadership

Through collaborative partnerships with other institutions in both the higher education and the further education sector, and active contribution from industry, employers, alumni and current students, a sophisticated credit-based modular scheme would be developed. The goals would be to:

- broaden access to learners, either by direct entry, via industry or other educational institutions

- promote Mode 2 knowledge production through creating opportunities for application-centred and transdisciplinary learning experiences

- operationalise the principles of outcomes-based education and training

- foster a paradigm shift in curriculum development

- create an institutional culture grounded in values that both celebrate the educational rationale for change and promote participative and inclusive styles of leadership and management (a milieu congruent with that of a Learning Organisation)

Another layer of complexity is added to the model when the concepts of 'progressive' and 'regressive' modular frameworks, as introduced by the

HEQC (1994a) and further explained by Robertson (1996), are considered. These two concepts illuminate some of the potential pitfalls along the trajectory. Whilst according to Robertson, 'progressive' frameworks might fulfil 'their objectives of stimulating new academic transactions', 'regressive frameworks are more numerous'. A regressive framework is characterised by a failure to reach an 'effective reconciliation with contributing academic disciplines and...collapsing back into conventional course patterns' (Robertson, 1996: 23). Such frameworks are modular only in title, and offer phantom choice and phantom flexibility as discussed by Watson (1989 & 1996).

Four main reasons for regression have been detected, and are described in detail by Robertson (1996: 23). First, is that of 'an ascendancy of administrative preferences for standardisation over academic disciplinary variety'. For the most part this is created by assumptions that different disciplines can conform to the same modular conventions such as module size. One way to overcome this is might be to aim for 'unity not uniformity' through a credit-based modular system that utilises the 'exchange value of the unit of credit currency'.

A second reason is 'strategic immaturity in managing the relationships and transactions of an internal learning market'. This is particularly evident where an institution has failed to strike the correct balance between centralisation and decentralisation, or between academic disciplines and frameworks. This is often created when 'universities graft modular frameworks onto existing departmental structures'. Phantom modularity tends to occur where the framework exists as a 'weak overlay on a decentralised departmental structure' (Robertson, 1996: 23).

A third reason is 'mission hybridisation' where an institution is apparently unclear 'why they are pursuing a modular 'solution' or whether this fits their strategic position in the learning market'. Robertson (1996) explains that this is most obviously manifested in those arrangements where universities have modularised their courses, split existing programmes into semester-length

halves, but have not otherwise expected or encouraged students to stray from traditional disciplinary pathways.

The fourth reason, according to Robertson (1996: 24) is a 'legitimation crisis' which 'occurs when academic disciplines are forced into compliance with institutional framework protocols under terms which have not been negotiated with them'.

Thus, in order to achieve the desired goal on the trajectory it is essential that an institution is alert to the potential dangers outlined above. One or more of the conditions described could either arrest the process or cause a 'downturn' in progress. This is represented diagrammatically on the model with the double-headed arrows, which portray progressive or regressive movement along the trajectory. Thus, it is important that an institution anticipates the potential arresting factors ('knows the signs') within their own time-scales and rates of change.

The philosophy of Technikon Education was outlined in Chapter 1, together with the goals that have been established nationally for education in South Africa. These goals and philosophies combine structurally and functionally in Scenario Three. However, full realisation of this scenario would require a shift from management to leadership. The promotion of the values and the qualities of what Schwahn and Spady (1998: 12) have called the 'Total Leader' might be an important factor in the achievement of this position on the trajectory. The essence of the Total Leader is 'openness, flexibility, empowerment and capacity to manage increasingly complex and dynamic changes'.

The challenges for M L Sultan

The challenges for M L Sultan Technikon, in progressing towards credit-based modularity are, therefore, many-fold and complex. There are, however, pools of experience to 'dip in' on the way, perhaps in particular to elucidate more fully the potential stimuli for progression and regression. The following

statement, reflecting on experiences in the UK, helps to emphasise the importance of learning from others:

> [We need a] realisation that we can learn from one another and that if there had been greater sharing of experiences and acknowledgement of similarities, it would have been possible for those introducing modular programmes more recently to have avoided some of the pitfalls experienced by those who implemented them earlier (Editorial Team, 1996: 2).

The sentiments expressed in the extract above were echoed by several of the respondents in this study. As one respondent commented 'get as much advice as you can in advance'. Another went further when he said:

> Go and talk to as many people as possible who have been involved in the process, and find out the advantages and disadvantages...and make sure that you try and address as many of the disadvantages that other institutions have found before you embark upon it.

Whilst it is sound counsel to seek advice as part of the process, ultimately the decisions that are taken have to be appropriate for the specific context of M L Sultan Technikon and South African higher education in general. As Allen and Layer (1995:107), from the perspective of considerable experience, point out:

> Though many issues may be common, the actions required to resolve them within any one institutional context will vary dramatically. There may be models, but they are only that. There may be good practice, but it may not be appropriate or feasible for a particular situation. What there certainly isn't, is the grand design. Pilgrimages may make you feel good and provide you with some vision. They may even tell you or your institution the best way to lead your life. But they will not resolve the issue of how through the institutional tools available - the people, structures, documents, committees - it is possible to introduce appropriate credit based schemes. Nor will the management gurus provide the answers...it is clear from the experience of many institutions that this worthy goal cannot be achieved without taking account of the experience of staff - academic and administrative - in the change process

The notion that, as Krachai (1987:16) puts it 'modularisation [is] a socially interactive process', cannot be undervalued and it is in this spirit that M L Sultan must 'grasp the nettle' and take up the challenges. However, the following statement contains a powerful reminder of the critical importance of giving the process considerable thought:

> The elephant's graveyard of curriculum change is littered with reminders of experiments that finally failed (Bell G, 1987: 21).

Chapter 7: Postscript

7.1 Introduction

The purpose of this postscript is to signal some of the important issues and considerations that emerged from the questionnaire and the unstructured interviews with respondents. In analysing the data nine predominant groups of issues relating to principles, policy and practice became evident, but to attempt to interpret all nine was beyond the scope of this study, as Chapter 4 explained. However, as stressed in Chapter 4, the importance of interrelationships between all these issues, and their potential to influence the processes of decision-making within the development of a modular system, cannot be underestimated. The insights that the respondents gave into these broader issues added richness and depth to the study.

The remaining eight groups of issues that will be briefly discussed in the following sections are assessment; credit; awards; student counselling and guidance; management; administration; semesterisation and change. In each section pointers to a selection of appropriate literature sources will be presented.

7.2 Assessment

Assessment in modular schemes was one of the predominant issues discussed by respondents. The main themes to emerge relating to assessment were the changes that have occurred in assessment practice and some of the impacts on students and staff.

Several respondents suggested that there had been changes in the assessment practice in the university since modularisation. One specific change noted was an attempt to make the marking of laboratory practical assessments 'more meaningful' by endeavouring to base the assessment on observation of the students in the laboratory rather than simply assessing the laboratory report. From the explanations given by respondents there appeared to be a noticeable trend away from the reliance on summative

towards more formative forms of assessment. Whilst arguably this shift does not need to be promoted by modularisation it is, nevertheless, interesting that it was occurring. One of the stimuli that were identified was a shift towards learning outcomes and criterion-referenced (rather than norm-referenced) assessment in modules (Davidson, 1992; Tait, 1994).

With regard to the impact on students, respondents highlighted factors such as the problems caused by the 'bunching' of assessments. Ostensibly to allow the students a period of time with which to become familiar with the academic content of the module the assignments and tests were frequently timed for the latter part of the module delivery. However, this often resulted in the due dates for assessments for several different modules falling together. This leads to complaints about 'student workload'. There is a related potential for 'over assessment' in modular schemes as the number of assessments can proliferate. Whilst it is desirable that students experience a variety of assessment methods, it is important that the assessment scheme incorporates safeguards to reduce the assessment load, ensure balance and allow for progression through the programme (CNAA, 1989 & 1990; Leask, 1994; and Billing, 1996).

One of the possible advantages for students that was mentioned by respondents in this study was a greater transparency of assessment expectations through the information given in the module descriptor. Other benefits that were emphasised included the opportunity for students to resubmit assignments; for a module to be reassessed if the student failed; and, in cases where the module was not 'core' for the next level, for the student to be given the opportunity to 'trail' failed modules. However, as one respondent commented this could have the effect of the 'student not putting in [the] effort because they know they have a second chance'. The perception of academic staff with respect to student failure and condonement has been discussed by, among others, Somerville (1996).

Another student ploy that was described by respondents was that of tactical behaviour where students avoid modules that are perceived as being 'difficult

to pass'. One respondent explained that serious conceptual gaps might be the consequence. The example that he cited was of students avoiding Biochemistry or Genetics modules with the result that their employment prospects could be detrimentally affected.

Some of the key issues relating to the impact on staff included an increase in 'marking load' caused by factors such as changes in assessment practice, for instance, an increase in projects and presentations, and the potential for large numbers of students choosing to register for a module. Respondents also commented that accurately predicting the number of students who will choose a module was often difficult and that this had implications for staff marking loads. Another very important issue that was discussed at length by several of the respondents was the altered role of the external examiner (Tall *et al*, 1994; Marfleet and Kushner, 1995a & b; Billing, 1996; Adams, 1996). These changes included, for example, little 'face-to-face' contact with students and the steady demise of the 'viva'

7.3 Credit

The intimacy of the relationship between modularity and credit has been stressed in Chapters 2 and 5. Where appropriate the concepts and principles of credit have been discussed in the main chapters, and therefore do not warrant further discussion here. It is however pertinent to add that one of the most fundamental realisations to emerge from conducting this study is that a comprehensive understanding 'credit' is essential to the process of modularisation. Two authoritative and highly valuable sources of vital information that extensively discuss the concept of credit are the HEQC (1994a) and Allen and Layer (1995).

7.4 Awards, level descriptors and standards

In the discussions, particularly in the unstructured interviews, about the Awards made at the universities a number of stimulating and challenging issues arose. At Napier University, for instance, the CATS Co-ordinator explained that Napier had 'four undergraduate stages, a: Certificate of Higher Education on completion of Year 1; Diploma of Higher Education with 240

credit points; Bachelors Degree with 360 credit points; and an honours degree 480 credit points'. Furthermore, he explained that the Napier CAT Scheme students were eligible for an award after each exit and that this was 'different from the old traditional degree scheme where if they left before the three years up to degree stage they would not get an award'. The significance of this conversation was that it led on to discussion of embedded issues such as the importance of level descriptors and of defining Academic Standards. These critical issues also ran through discussions at the other four universities. Their importance is underlined in the literature by, among others, Winter, 1993 & 1994; HEQC, 1994a; HEQC, 1995b; Jackson, 1996c; Moon, 1996; Lyons and Bement, 1996; Shaw and Stoney, 1996; HEQC, 1997.

Although an analysis of these elements is beyond this study their critical significance has become increasingly apparent in higher education in South Africa. National policy decisions taken with regard to level descriptors and standards will have major ramifications in the implementation of modularity.

7.5 Student counselling and guidance

A common theme to emerge from across all five universities was the increased need with modularity for academic staff to offer students counselling and guidance on appropriate module choices. A number of implications were brought to the fore. Firstly, the importance of 'keeping it to one or two people', in other words that only a few academic staff should be involved with this role. The rationale given for this recommendation was that it was essential to select staff 'who know what they are talking about and are aware of the system, and will give the same message to every student'. The main attribute identified was that staff must have a thorough knowledge of the possible options and alternative routes open to students. A particular example used to illustrate this was the situation where a student has failed one or more core modules and therefore cannot progress within a specific programme that requires the core module. The student would have to change programmes and would need sound and comprehensive advice.

However, the perceptions of other respondents presented another viewpoint, that there is a danger of overloading staff by making them responsible for too many students. As one person commented 'at the moment we spend a huge amount of time counselling [students]'. A further aspect that was mentioned was the difficulties of anticipating the optimum timing for counselling interventions to occur. This is an issue that is picked up by, for example Harrop and Woodcock (1992: 93), who comment that academic counselling is central to the social well-being and academic progress of 'modular students'. However, their experience leads Harrop and Woodcock (1992: 93) to state that 'the existence of an administrative system covering all students does not guarantee that necessary advice and counselling are available when needed'.

7.6 Management

Some of the management issues requiring consideration were discussed in Chapter 6. However, there are two that warrant brief discussion here because of the insights that were shared by respondents during the unstructured interviews. The first is the immense importance of establishing relevant teams, boards and committees to manage modularity at various levels. For example, one respondent stressed the necessity for 'teams of people co-ordinating module development'. In each individual interview respondents had valuable comments and opinions about the mechanisms that are required to ensure that the appropriate information relating to the 'performance of students' was collated and discussed timeously after each main assessment (examination) period. That there should be a parallel process for the 'performance of individual modules', where the focus was on the module rather than the individual student, was also emphasised.

The second issue to attract attention was the need for active staff development to support the academic and administrative staff throughout the development and implementation of modularisation. From a management perspective such staff development interventions would evidently require careful planning (CNAA, 1989).

7.7 Administration

Respondents were very keen to highlight the inherent dangers and problems in the administrative aspects of implementing modularisation. The issue of 'timetabling' stimulated particularly lively debate, and brought forth many critical and acerbic comments. It was striking, for example, that several respondents chose the phrase 'it's a nightmare!' to describe the difficulties inherent in the process of timetabling. Some of the difficulties that respondents mentioned included that the limitations imposed by the timetable may have the effect of reducing flexibility and choice. One possible solution for this would be linking the timetable to the modules rather than the courses or programmes. However, the difficulties of fitting in 'free choice elective' modules and the potential conflict between offering modules to meet the needs of full-time and part-time students requires much consideration.

The second major administrative issue to be emphasised centred on the absolutely fundamental requirement for an effective and reliable Computer Management System. Respondents were adamant that, for the purposes of tracking students, keeping centralised records, registering students on modules (not courses or programmes), only a computerised system would suffice. Most of the respondents had just 'endured' the stresses of the end of the academic year with all the activities essential for the publication of student results. As a consequence there was a particularly tendency to want to share their recent experiences of administrative overload.

7.8 Semesterisation

The semesterisation of the academic year was a particularly troublesome issue in higher education in Britain. As Gregg (1996: 11) comments 'in most institutions across the UK, modularisation has occurred simultaneously with semesterisation'. One of the specific problems is that, with an academic year commencing in September and closing in June, the Christmas and Easter vacations seriously disrupt the continuity of teaching.

The academic year in South Africa (January to December) apparently lends itself more favourably to semesters. However, the situation is not straightforward. At M L Sultan Technikon, for example, there is a mixture of semester and annual programmes. Whilst there are two semesters there are also four terms with corresponding inter-term breaks for all students. In the event of the model being adopted for modularisation that favours module length being equated with a semester, the four-term year structure would have to be reconsidered. The implication of semesters is discussed by, for example, Aldous, 1996; Margham, 1996; Scurry and Brooks, 1996; and Rich and Scott, 1997.

7.9 Making Changes: the importance of Quality Assurance

The final group of issues that emerged could be defined as those relating to the necessity for both making changes and for effective Quality Assurance processes to inform and guide the changes. Most of the respondents in this study recommended that consideration be given to the establishment of structures and procedures for the routine monitoring; annual monitoring; and long-term review and validation of the modular programmes. The message that seemed to be emerging was that whilst these might also be an integral part of traditional courses and programmes the roles and responsibilities might evolve further with modularisation. In most cases respondents cited the changes that had occurred 'post-CNAA'.

One of the aspects that was prominent in the discussions with respondents was the importance of obtaining regular feedback from students. As one person astutely put it there 'might be a modular system where it looks 'administratively' good, and 'efficiency' good but is it actually working? Are the staff and students satisfied?' Furthermore, he stressed the importance of ensuring that 'academic content is *genuinely* looked at'. The issues of Quality Assurance have notable been discussed in the literature by CNAA (1989 & 1990) and the HEQC (1994a & 1997).

This postscript has sought to give a flavour of some of the broader issues and considerations pertinent to the development and implementation of credit-

bearing modular courses. Whilst each of these issues is in itself worthy of considerable study, their significance in the process of modularisation cannot be overemphasised. Ultimately any institution considering 'going modular' and not giving consideration to these broader issues would do so at their peril.

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Appendix 1: Profile of Interviewees

INSTITUTION	DEPARTMENT/ FACULTY/ SCHOOL/ UNIT	RESPONSIBILITY	POST LEVEL (years in teaching)	DATA COLLECTION 1	2	3
Manchester Metropolitan University	Faculty of Science And Engineering: Department of Biological Sciences	Deputy Head of Department	PL (20)		✓	
		Course Director	PL (25)		✓	
		Course Leader	SL (24)		✓	
		Course Leader	SL (23)		✓	
Napier University	Faculty of Science: Department of Biological Sciences	Course Leader	L (16)		✓	
		Course Leader (two courses)	SL (24)		✓	
		CATS Co-ordinator	SL (25)	✓		✓
		Assistant Principal	Manager			✓
University of the West of England	Faculty of Applied Sciences	Course Leader	SL			✓
		Director of Studies	SL			✓
		Head of Department	PL			✓
University of Wolverhampton	Faculty of Science And Technology: School of Applied Sciences	Module Manager/Award Leader	PL (24)	✓		✓
		Head of School	Head (29)	✓		✓
		Project Co-ordinator/Access Co-ordinator	SL (30)	✓		✓
		Awards Manager/Course Leader	PL	✗		✓
		Course Co-ordinator	SL (15)	✓		✓
University of Sunderland	School of the Environment	Director: Undergraduate Programmes	PL (24)	✓		✓
	Quality Unit	Quality Support Unit				✓
	Quality Unit	Quality Support Unit				✓
	School of Health Sciences	Course Leader	PL	✗		✓

KEY: 1 Questionnaire 2 Structured Interview 3 Unstructured Conversation ✗ Nil return of questionnaire

Appendix 2: Preamble to the interview

First of all I would like to thank you for agreeing to be interviewed today, especially as it is such a busy time of the year at the University.

I sent a letter to the department outlining the reasons for my visit and the nature of my research. It is probably a while since you saw the letter so I would like to start by recapping why I am here.

I am a member of academic staff from M L Sultan Technikon, in Durban South Africa. A technikon is a vocationally oriented tertiary education institution, similar in many ways to the 'old polytechnics' in Britain. We offer a range of learning programmes and qualifications.

This study is primarily a part of my studies towards a Masters Degree in Education. However, the purpose of my research is more wide-ranging. I wish to investigate some of the strategic issues pertaining to the design, development and implementation of modular courses, particularly in Biotechnology. The outcomes of the research will allow recommendations for the process of implementation of modularisation at M L Sultan technikon. I know that modularisation is not a new initiative in Britain, so I have come to learn from your experiences.

I have a schedule of questions that I would like to ask you. If you agree I would like to record your responses on tape, because it will help me greatly when I analyse the data. Anything that you say will be treated as confidential.

Would you like to ask any questions for clarity?

There are many questions that I could ask you, but I would like to focus on seven specific themes...(commence the interview)

Appendix 3: The Interview Schedule/Questionnaire

INSTITUTION	INTERVIEW No.

SECTION 1: BACKGROUND DETAILS

a) How long have you been teaching?_____

b) What subjects do you teach? _____

_____

c) What are your specific departmental responsibilities?_____

_____

d) What grade post do you hold? _____

d) When you were appointed had modularisation already been implemented?

_____

SECTION 2: CORE THEME QUESTIONS

1. CONCEPTUALISATION OF MODULARISATION

1.1 How would you define modularisation?

1.2 Do you think that any of your colleagues in the department see it differently?

1.3 Has your understanding of modularisation shifted over time and if so how has it changed?

1.4 Is what you have described the way modularisation is understood by the University as a whole?

2. NATURE OF THE PROCESS

2.1 Initially was modularisation a response to a particular initiative?

2.2 What were the main issues relating to the process of modularisation that were debated in the department?

2.3 Could you explain the nature of the process of development towards modularisation in the department?

2.4 How were problems specific to science, for example incorporation of laboratory skills and industrial training/experience dealt with?

2.5 Who were the key players involved in the process?

2.6 What did you consider the most important lesson learned about curriculum development?

3. THE ROLE AND COMPOSITION OF THE PROGRAMME COURSE TEAM

3.1 What was your role in the course/programme team?

3.2 Can you tell me how the course team functioned in the development of the modular programme?

3.3 Does the course team have a function now?

3.4 Is there a difference between the way that it is intended to function (maybe as set out in policy documents) and the way it actually functions?

4. IMPACT OF LOCAL AND NATIONAL DEVELOPMENTS.

4.1 Are there any particular local or national developments that you think have influenced modularisation?

5. IMPACT OF MODULARISATION ON STUDENTS

5.1 What is your opinion of the impact that modularisation has had on the student experience?

6. OPINION OF MODULARISATION

6.1 From your experience do you still support modularisation?

7. TAKE HOME MESSAGE.

7.1 MLST is just embarking on the process of modularisation. If I asked you to reflect for a moment what would be the most important piece of advice you could offer us?

Thank you for participating in this interview